The OIL and GAS JOURNAL
PRODUCING REFINING MARKETING

VOL. 22. No. 21 TULSA, OKLAHOMA, OCTOBER 18, 1923

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Powell Production Shows Big Increase

Average daily production in United States week ending Oct. 13, 2,157,453 bbls.

Output There Increases 34,000 Bbls. Daily. Floods Cause Slump in Wyoming-Montana. California Again Declines.

Loss in daily production in United States week ending Oct. 13, 26,550 bbls.

By Andrew M. Rowley

While the average daily production of crude petroleum throughout the United States decreased 26,550 barrels during the past week, several features should be considered in analyzing the general situation. Probably the most important is the fact California again showed a material decline in output, the decrease in production there amounting to 23,000 barrels daily. At the same time, the Torrance and Compton Fields in California, which are beginning to be centers of attention from operators throughout the country because of the potential production they are said to have, showed no change in output, the former producing 12,000 barrels daily and the latter 1,300.

The Wyoming-Montana area really was responsible for the decline in daily production of the country during the week. Flood conditions through that territory reduced runs to such an extent, production figures for the week fell off slightly more than 50,000 barrels daily. Had normal conditions prevailed in this area, it is reasonable to assume production there would have been around 155,000 barrels daily or approximately 70,000 barrels greater than the figures for the past week show.

Powell Shows Big Spurt

On the other hand, the Powell Field of Texas showed a somewhat unexpected spurt and the average daily production there increased approximately 34,000 barrels last week, bringing the average output for the field to 204,175 barrels daily as compared to 170,115 barrels daily for the preceding week. The bringing in of other big wells over Sunday further increased the production at Powell until the field was producing at the rate of 235,000 barrels daily on Monday of this week.

Considered as a whole, the production situation throughout the United States is improving. California, which has been considered the crux of the overproduction situation for many months, is still registering a substantial decrease in output with indications of further declines. While there is considerable new work going on in Torrance and Compton, it is not expected these fields will have any great influence on the general situation for several months at least. In the meantime, Santa Fe Springs which holds the production record of the United States for the output of any one field, is dropping steadily and may be expected to continue to decline with possible slight increases from time to time as new wells are brought in to bolster up the losses sustained as the old producers decline.

The Situation at Powell

Many operators had concluded the peak of production had been reached at Powell or that the output there would not go much higher, if any. The bringing in of a number of good wells last week upset these calculations but there is a feeling Powell cannot maintain such an increased production for any great length of time. Wells there fall off rapidly and it is necessary to bring in numerous new wells to maintain production up to figures now being recorded. At the same time, there is considerable territory at Powell which has not as yet been drilled and what this area will do is problematical. A number of operating companies in the field had cut down their storage programs because they felt the peak had been reached and the sudden and material increase during the past week has forced them to reconsider the matter and it is possible they may go ahead with the original storage programs. One feature of the situation which must be considered is the fact there are about 51 wells in the field with casing set and which could be drilled into the sand within a few days.

The lifting of the proration order in North Central Texas resulted in an increase in production in that area of 4,389 barrels daily. Operators there are in a better frame of mind for with the lifting of proration the purchasing companies inauguarated a new schedule of prices which aids many producers in the territory. The curtailment of operations throughout Oklahoma is continuing with the result that State is holding its production down as much as possible. An increase in the output of heavy oil in the Smackover district of Arkansas was responsible for a production jump in that area during the week.

PRODUCTION IN THE UNITED STATES

Estimated daily average production in the oil fields of the United States for the week ended October 13, and a comparison with the previous week follows:

Field	Oct. 13	Oct. 6
Oklahoma—Northern Fields:		
Tonkawa	57,890	56,501
Burbank	93,030	95,912
Other Osage Fields	28,875	28,850
Cushing and Shamrock	24,390	24,475
Bristow and Eastern Bristow	48,775	47,500
Northern Miscellaneous	84,615	84,725
Southern Fields:		
Healdton	17,210	17,200
Hewitt	22,600	22,100
Southern Miscellaneous	24,990	25,450
Total Oklahoma	402,375	402,713
North Louisiana	58,995	58,175
Arkansas—		
El Dorado	10,875	11,490
Smackover Light	16,195	15,115
Smackover Heavy	90,255	85,430
Other Arkansas Fields	11,750	10,765
Total Arkansas	129,075	122,800
North Central Texas	116,244	111,855
East Central Texas (Mexia, Currie, Corsicana, Powell)	254,734	218,965
Kansas	73,875	73,100
Total Mid-Continent Area	1,035,298	987,608
Gulf Coast	97,750	98,500
Eastern	110,975	111,015
Wyoming-Montana	85,130	135,580
California—		
Santa Fe Springs	280,000	300,000
Long Beach	255,000	250,000
Huntington Beach	80,000	85,000
Torrance	12,000	12,000
Compton	1,300	1,300
Remainder State	200,000	203,000
Total California	828,300	851,300
Total United States	2,157,453	2,184,003

Decrease, 26,550 Barrels

East Central Texas

Probably the most important development at Powell during the past week, aside from the large increase in production, was the completion of the E. L. Smith Oil Co. & Wheelock's No. 1 Keith on the Matthews survey, which came in at 7,000 barrels. This well lies nearly midway between two deep, dry holes. In the early days of the development of the field, these dry holes were believed to cut off all hopes of production in that part of the field, but as the development of the field extended southwesterly along a line midway between the two dry holes, it was felt the field might extend on past the holes and the well was drilled with the result stated. The bringing in of this well may open up much new territory. Another test is being drilled by Pickens & Webster on the Boyd farm about 1¼ miles southwest of the Smith Oil Company's well and it now is the center of interest. No strangers have been permitted on the derrick floor of this well and little definite information regarding it is available. It is reported the well had no chalk as deep as 2,400 feet, which, if true, makes the operation look unfavorable but it will be several days before the real status of the well may be judged. The Tidal-Buttram Oil Company's No. 1 Crews in the northeast corner location of the farm struck the sand at 2,930-62 feet and made 16,000 barrels daily and on Saturday was flowing 19,000 barrels a day, making it one of the largest wells completed in the field thus far.

California

The reduction in price of crude in California announced last week is expected to curtail drilling operations to some extent and is regarded as a protective measure in the present overproduction situation. It will aid greatly in preventing any heedless drilling campaign in the Torrance and Compton Fields upon the part of holders of small acreage. Santa Fe Springs continues on the decline and this field and Huntington Beach will show a falling off in production for September, although it is expected Long Beach will show an increase. It is expected the State will show a net increase in daily production for September of about 15,000 barrels. There were few completions in the three principal fields—Santa Fe Springs, Long Beach and Huntington Beach—during the past week. The situation at Santa Fe Springs and Huntington Beach has reached the point where completions are necessary to hold up the present production and when new wells are not brought in the output of the fields will decline.

Oklahoma

It is expected the present shutdown movement throughout Oklahoma will continue through the winter as operators are loathe to start new development unless it is necessary. The production of the Wewoka Field in Seminole County dropped somewhat during the past week and was averaging about 15,416 barrels a day. Pipe lines have been handling less than half the oil produced in the field. The output at Tonkawa showed a slight increase last week but is expected to show a decline again this week.

Table of Contents on following page.

The OIL and GAS JOURNAL
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Published Weekly at 114-116 West Second Street, Tulsa, Oklahoma, by
THE PETROLEUM PUBLISHING CO.

CONTENTS

POWELL PRODUCTION SHOWS BIG INCREASE 17
EDITORIAL PAGE 20
OIL ENGINES KEEP WATER OUT OF HOLLAND 24
PROGRESS IN DEVELOPING SALT CREEK FIELD 25
INDUSTRY TO BENEFIT BY BIG OIL SHOW 34
INDUSTRY RECOVERS FROM CASE OF NERVES 54
HISTORY OF MID-CONTINENT OIL FIELD 56
EIGHTY PER CENT OF OIL NOT RECOVERED 58
CONTROL OF CRUDE PRODUCTION SOUGHT 60
WHO'S WHO AND PERSONALS 64
NEW MEXICO SALE BRINGS NAVAJOS $83,500 76
MOTORISTS GAIN BY GASOLINE RESEARCH 78
EXPOUNDS THEORY OF FISH ORIGIN IN OIL 79

FIELD OPERATIONS

OKLAHOMA 36
CALIFORNIA 38
GULF COAST 40
CENTRAL WEST 40
EAST CENTRAL TEXAS 42
NORTH CENTRAL TEXAS 44
LOUISIANA-ARKANSAS 46
PENNSYLVANIA-WEST VIRGINIA 48
CANADA 48
WYOMING 50
KANSAS 50
WEST KENTUCKY-TENNESSEE 52
MEXICO 52
DETAILED REPORT OPERATIONS EASTERN FIELDS 121

REFINING AND MARKETING

CONTINUED FIRMNESS FEATURE OF GROUP 3 26
REFINERY AND CRUDE PRICES 30-31
TANK WAGON QUOTATIONS 32
REFINING AND MARKETING BRIEFS 94
COOLING DEVICES AND EVAPORATION LOSSES 96
ELECTRICAL PROCESS FOR DEHYDRATING CUT OIL 100
CHICAGO MARKET QUIET, PRICES FLAT 101
EXPORT GASOLINE CUT ONLY EASTERN CHANGE 104

MISCELLANEOUS

GULF'S ACTION LOWERS TANK WAGON MARKETS 18
TECHNOLOGISTS HOLD CONVENTION 60
NATURAL GAS DEVELOPMENTS 70-72
EQUIPMENT AND SUPPLIES 74
MEXICAN AUGUST SHIPMENTS FALL 80
BURBANK OUTPUT 53,833,146 BBLS. 88
GASOLINE SUBJECT BEFORE ATTORNEYS GENERAL 106

FIELD CORRESPONDENTS

OKLAHOMA AND KANSAS — *Ralph T. Baker*
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ACTION OF GULF BRINGS GENERAL LOWERING OF TANK WAGON MARKETS

What appeared to be one of the most important general tank wagon adjustments in gasoline of the year was precipitated on Tuesday when the Gulf Refining Co. announced a reduction of 2 cents per gallon in 24 States in which it operates, from Texas to Maine, and 3 cents in Massachusetts. The reduction was immediately met by several large marketing companies in competitive territory. Up to this writing the Atlantic Refining Co. had reduced 2 cents in Pennsylvania and Delaware; Standard Oil Co. of Kentucky, 2 cents in its entire territory, consisting of five States in the southeast; Standard Oil Co. of New Jersey, 2 cents in New Jersey, and Standard Oil Co. of New York, 2 cents in entire territory with the exception of Massachussetts where the reduction was 3 cents. All these changes are carried in the tank wagon tables of this issue with the exception of those made by the Standard Oil Co. of New York and the Standard Oil Co. of New Jersey.

These reductions had been met by the Tide Water Oil Co., The Texas Co. and practically all major marketing companies in the East and the Southeast. It was predicted in the East that the Standard Oil Co. of New Jersey would make the 2-cent reduction general in its territory.

The action of the Gulf Refining Co. came as a surprise to other companies. This concern is now one of the most important factors in the Atlantic Coast area handling approximately 40,000 barrels of gasoline daily during the summer months. In making the reduction the company announced it was taking the initiative in order to stabilize markets and that competitive conditions are worst in Massachusetts and it was for that reason that the 3-cent reduction was made there.

N. P. M. A. Session AT Milwaukee Will Discuss Oil Problems

MILWAUKEE, Wis., October 16.—All plans for the holding of the annual convention of the National Petroleum Marketers' Association here next week have been completed. The convention will open Tuesday morning and close Thursday night. All sessions will be held and the exhibits displayed at the auditorium, located in the business district of the city. Those attending the convention will be quartered in the leading down-town hotels.

L. V. Nicholas
President of the National Petroleum Marketers' Association, which will hold its annual convention at Milwaukee, Wis., October 22, 23 and 24.

The convention, according to officials of the National Association, will be the largest that has ever been held by jobbing interests. There will be more exhibits shown than at any previous convention, the auditorium furnishing spacious quarters for all booths. Several of the large independent jobbing concerns of this city, cooperating with the Wisconsin organizations, are acting as hosts for the convention and are making a special effort to afford every convenience for those attending the convention. Several entertainment features have been provided by the State organization.

The program, as previously announced, will be devoted to general discussion of several matters of special interest to jobbers. The Weekly Trade Bulletin of the National Association has the following to say in the current issue regarding the convention:

"Plain truth, unvarnished, will be talked even more frankly than ever before. Our industry is at the forks in the road—great issues must be decided very soon. If we are to make further bids for Government control and State and Municipal interference, let us at least do it with our eyes open.

"If we are anxious to build a truly great industry, free from interference and Municipal, State and National handicaps, then let us fearlessly face the issues that are arousing public suspicion and take whatever action is necessary to correct existing evils.

"A really constructive program has been announced and will be followed through as closely as possible, but there are great, live problems not on the program which must be discussed."

FILLING STATION COST IN LOS ANGELES, CAL.

LOS ANGELES, Calif., Oct. 13.—There are 594 gasoline service stations in the city of Los Angeles, which comprises something close to 380 square miles in area. The territory served, therefore, is quite extensive, requiring a larger number of service stations for the population than would normally be required by a city of equal population more congested. The city's population is approximately 900,000 and there are 153,000 motor vehicles registered. Each car consumes an average of 2.2 gallons daily.

It is conservatively estimated that the average service station in this locality has a daily overhead expense of $10, or $300 a month, which includes cost of maintaining the station, taxes and interest at 7 per cent on the invested capital tied up. The cost of operating the Los Angeles city service stations is close to $178,200 a month, or $5,940 a day.

A service station in this city must average over 500 gallons of gasoline sales a day to get its average share of the general trade, which is estimated at the present peak of consumption to be in the aggregate, 350,000 gallons a day.

At the present differential of 3 cents a gallon between the tank wagon price and the consumers' price, the Los Angeles service stations take in a daily gross profit of $10,500. Subtracting from this sum the overhead expense of $5,940, the net profit to the service station owners is close to $4,650 a day, or $7.67 a station. This is the average profit on gasoline sales alone and does not include any account of sales of lubricants or accessories which also furnish a profit to many service stations.

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Published Weekly by
THE PETROLEUM PUBLISHING COMPANY
114-116 West Second Street
TULSA, OKLA.

Established as an International Publication in 1910 by Patrick C. Boyle

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TERMS OF SUBSCRIPTION
(By Mail, Postage Prepaid)

Single copies	$ .15
Three months	$2.00
Six months	$3.00
One year (in United States)	$6.00
One year (in Canada)	$7.00
One year (foreign countries)	$7.00

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THE VALUE OF THE EXPOSITION

If the International Petroleum Exposition was a revelation to most American visitors it was a marvelous exhibition to the foreign representatives who repeatedly expressed their amazement at the bewildering scope and wonderful efficiency attained by American manufacturers of oil field and refining equipment. It is, of course, an old story that the rest of the world relies upon American methods in the search for petroleum, but our guests confessed they had no conception of the perfection to which the making of oil well supplies had been brought in this country. Their reports to their home governments will, no doubt, be productive of greatly increased business for American supply men.

Another phase of the Exposition was its educative effect upon the lay public. Visitors to the exhibits frequently remarked that they had no idea of the complicated methods nowadays used in the drilling for oil and those who had seen the instructive and most interesting motion picture film, "The World Struggle for Oil," presented during the week under the auspices of The Oil and Gas Journal, commented upon the contrast between the drilling methods of Drake's day and those now employed. The effect must be to promote a better understanding and a greater popular appreciation of the oil industry.

It is proper at this time, also, to compliment General Manager Edward F. McIntyre on the successful outcome of the first International Petroleum Exposition and Congress. The difficulties of his undertaking can be thoroughly appreciated by everyone who visited it; the executive details involved in the assembling of such a mass of exhibits and the ability required in suitably displaying them to the satisfaction of exhibitors and the enjoyment of the public, called for managerial direction and experience of a high order. The general wish that the Exposition be made a permanent annual event in Tulsa is the best tribute to the management and to the selection of the country's oil center as the most accessible and suitable location for future petroleum expositions which promise to grow in size and interest with each year.

A GREAT OPPORTUNITY

A great opportunity awaits the annual meeting of the American Petroleum Institute when it assembles in St. Louis December 11 and the program announced suggests that the opportunity has been seen and will be seized.

First, as to overproduction. Overproduction means a surplus beyond what can be used, but can we say there is an overproduction of oil when we have failed to develop the most obvious and universal use of its bulk product?

There was a time when there was such an overproduction of gasoline that it was dumped into the creeks, but that was before we had developed a use for it in the internal combustion engine. On the contrary, we all know there is a use for fuel oil and distillates for heat but have simply failed to develop it.

What we are suffering from is not so much overproduction as under use.

This argument when presented in The Oil and Gas Journal months ago set many within the industry to thinking along new lines. At the meeting of the National Petroleum Association at Atlantic City Mr. Doherty's address urging just such development of new uses for oil put it squarely up to the leaders of the industry. The first subject on the program for the American Petroleum Institute at St. Louis is the appointment of a subcommittee to study the utilization of fuel oil and distillates and consider a program to further develop their use.

The second item on the program is to request the cooperation of the entire oil industry in collecting and disseminating currently the facts as to production, consumption and storage of petroleum and its products.

Discussion of this subject will afford the Institute an opportunity to consider the suggestion offered in these columns for placing these facts before the 13,000,000 customers of the filling stations, the most intimately interested body of public opinion and most easily reached by the oil industry.

These are the people to whom the politicians and the trouble makers appeal when they assail the industry, the people whose pockets are most directly affected. If the oil industry will show these people, as we believe it can show them, that the politicians and trouble makers within the industry are working against the public interest, there will be a speedy end to the agitation that is threatening the industry with political interference and ruinous restrictions.

The plan proposed is so simple, so natural and so feasible that the only wonder must be it has not been done before. At many of the filling stations throughout the country the customer is even now handed advertising matter of this or that company, a good deal of it of very dubious value and none of it at all attempting to set the industry's case before the public.

If it is deemed worth while to distribute this matter to customers at filling stations, how much more worthy and valuable would be the distribution of the facts about the oil business, showing our customers our side of the question and asking for a fair and friendly verdict?

The popular readiness to believe the politicians and demagogues who attack the oil industry is due to lack of information about the oil business. Mention oil to the average man and his immediate thought is of a "get-rich-quick" operation. People just simply will not think of the oil business as like any other, although it is the second largest industry in the country. But that is because they do not know. Their notion is limited to drilling a hole in the ground and getting a gusher and becoming millionaires overnight. They never seem to stop to think of the millions upon millions sunk in such holes, so that, as Mr. Marland told the Petroleum Congress last week, the producing branch furnished the public with oil during the past 50 years at something like $2,500,000,000 below cost; that last year—1922—the producing branch furnished the refining branch its crude petroleum at approximately $500,000,000 less than cost; that new wells drilled in the first half of this year cost more than all of the oil sold at all the wells in the United States.

Nor does the public pause to reflect upon the millions invested in pipe lines that gridiron the country, in tanks and tank cars, in the refining branch itself, one of the nation's greatest industries. Still less does it regard the familiar filling stations that dot city and country, the trucks required to stock them, the cost of land and elaborate service buildings, one great company having $20,000,000 invested in filling stations alone.

Besides what the public is disposed to think of as the gamble of oil production there is all this great business organization, on a scale equalling any in the country, operating every day in the year, along ordinary business lines of profit and loss and the keenest competition. That is the phase that the public does not think about because it does not know about it. It should be the immediate business of the oil industry, through such action as the American Petroleum Institute can take, an institution, by the way, that represents every branch of the industry and every side of it, to lay this information before the people.

The third item on the St. Louis program is the appointment of a committee to study the production and conservation of petroleum and its products.

So long ago as June 14 last The Oil and Gas Journal urged "the pressing need for the taking of common counsel and united action for the common good and the general principles vital to the life of the industry." Every day since has emphasized the necessity for such concerted action. It is to be hoped that the session of the American Petroleum Institute at St. Louis, having announced intention to grapple with that proposition, will stick to it until a solution has been accomplished.

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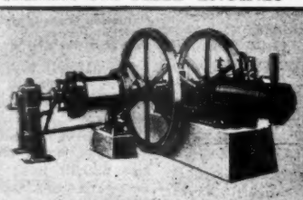

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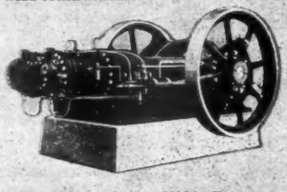

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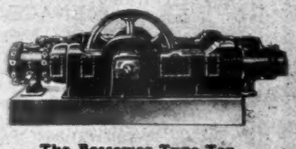

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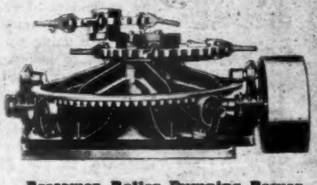

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Oil Securities Irregular During Week

Fluctuations Lack Significance While Market Awaits Shaping of Definite Trend in the Petroleum Industry.

By N. O. Fanning
Room 525, No. 30 Church St., New York

NEW YORK, Oct. 15.—Oil securities were irregular during the past week.

While the general stock markets were somewhat weak, the oils gave a fairly good account of themselves, and held a part of the gains made the week before.

No particular significance was attached to the course of oil securities. Much uncertainty exists in Wall Street as to whether the oil situation has really turned the corner or not, and until the trend one way or another becomes clearly defined, no great importance can be attached to irregular stock price movements.

Leaders in various lines of business and in Washington seem optimistic regarding the outlook for business in general this winter. Some of them make an exception of the oil business, however. Some observers of the petroleum situation who are in close touch with actual conditions believe that while the outlook for the Mid-Continent operators is not bright this winter, the big oil companies engaged in marketing and refining will make a fairly good showing. In some instances, record profits may be shown. Vacuum oil is placed in the latter class, while there is considerable optimism as to the outlook for Standard Oil of California and Pacific Oil.

Declaration of the regular quarterly dividend on the common stock of the Sinclair Consolidated Oil Corp. came as somewhat of a surprise to traders, who thought that the directors would not be inclined to pay out some $2,500,000 in this way under present conditions.

Transcontinental Oil Co. stock dropped to a new low record for all time of $2.25 per share during the week.

On the curb Penn Mex Fuel stock held well around 25, Prairie Oil & Gas maintained part of its previous gains, while Ohio Oil advanced to 56 in the face of a rather weak market. The more active Standard Oil issues, such as Standard Oil of Indiana and Standard Oil of New York, reacted three to four points from the high marks registered in the recent upward movement.

A feature of the Standard Oil group was Vacuum Oil, which has held quite steadily around 50, or within about one point of the high on this movement.

Crude Output Declines

In the face of bearish sentiment in Wall Street, the improved action of some of the more substantial oil stocks was looked upon as a reflection of a declining tendency in crude oil production.

It is generally realized that declining production alone will not right the petroleum situation immediately in view of the large stocks of oil that have been piled up, and the fact that the winter season is ahead. However, it will go a long way toward bringing about an improvement in the outlook for next spring, and Wall Street generally looks ahead a few months in its calculations.

Shell Union Oil Financing

Directors of the Shell Union Oil Corp. will offer to common stockholders of record October 22 the right to subscribe to 2,000,000 shares of additional no par value common stock at $10 per share. The right to subscribe will be in the ratio of one additional share for each four shares now owned. The issue has been underwritten. The right to subscribe to the additional stock expires November 22.

The Shell Union Co. declared the regular quarterly dividend of $1.50 per share on the preferred stock, payable November 15 to stockholders of record November 3.

National Supply Co.

The National Supply Co. of Delaware reports for the six months ended June 30, 1923, net income of $3,023,039, after interest, taxes, depreciation, etc. The consolidated income account for the six months period follows:

Net earnings	$3,744,927
Other income	497,308
Total income	$4,242,235
Interest, depreciation, etc.	522,127
Federal taxes	460,074
Proportion applicable to minority interest	206,995
Net income	$3,023,039

The regularly quarterly dividend of 50 cents per share on Sinclair Consolidated Oil Corp. common stock is payable November 30 to stockholders of record November 1. The company also declared the regular quarterly dividend on the preferred stock of $2 per share payable November 15 to stockholders of record November 1.

Union Oil Earnings

The Union Oil Co. of California reports net profit for the nine months ended September 30, 1923, of $7,200,000 after depreciation, depletion and taxes, against $9,250,000 in the corresponding period of 1922. The company produced 13,300,000 bbls. of crude in the first three quarters of 1923, an increase of 4,025,000 bbls. over the same period of 1922. Crude and fuel oil sales this year show a gain of 154 per cent and refined and lubricating oil business 22 per cent.

The White Oil Corp. reports to the New York Stock Exchange for the first eight months of 1923 net income of $20,910 after depreciation, depletion and federal taxes. The report follows:

Gross revenue	$2,539,473
Expenses taxes, etc.	2,061,412
Interest	125,550
Depreciation and depletion	331,590
Net income	$ 20,910

The condensed balance sheet of the White Oil Corp. as of August 31, 1923, follows:

Assets—Oil lands and leases, lands, buildings, machinery, etc., less depreciation $30,297,963; investments, $691,968; materials and supplies, $397,921; cash, $251,945; accounts receivable $180,560; development and operating expenditures, $131,758; notes receivable, $69,764; oil and refined products on hand, $408,758; miscellaneous assets, $10,004; deferred charges, $65,082; total $32,505,779.

Liabilities—Common stock, $25,094,506; preferred stock, $1,500,000; purchase money obligations $314,438; first mortgage bonds, $1,000,000; bank loans, $1,480,058; accounts payable, $157,406; notes payable, $144,234; accruals, $35,553; minority interest in capital stock of subsidiaries $2,925; special reserves, $2,053,270; surplus, $723,388; total, $32,505,779.

NEW YORK STOCK EXCHANGE—LIST OF ACTIVE STOCKS

No.	Stock—	Par	Dividend Rate	Closing Quotations Oct. 16	Oct. 9	Range High	1923 Low
1.	Associated Oil, new	..	..	26¾	....	....	....
2.	Atlantic Refining, common	100	4	103	*108	160	98¾
3.	Barnsdall "A"	25	..	*11	*11	35	9⅛
4.	Caddo Central Oil	..	..	*1¾	1⅜	9¼	1½
5.	California Petroleum, common	25	7	18⅜	19	29½	17⅛
6.	Cosden & Co., common	..	†4	26	26	62¼	22¾
7.	General American Tank	..	†3	*40	*42	71⅝	40
8.	General Asphalt	100	..	28¾	28	54	23
9.	Houston Oil	100	..	49	*51	78	40¾
10.	Independent Oil & Gas	10	..	5⅜	5¼	11¼	3⅜
11.	Indiahoma Refining	25	..	*1½	2¼	9	1¼
12.	Indian Refining	10	..	*5	*5	8½	5
13.	Invincible Oil	50	..	8⅛	8⅜	19¼	8
14.	Mariand Oil	..	†4	23	24	59⅝	20¼
15.	Mexican Seaboard	..	..	9½	9½	19⅝	5⅜
16.	Middle States Oil	10	..	5⅜	5¼	12¼	4⅜
17.	Pacific Oil	..	†3	37⅝	38⅜	48⅞	31½
18.	Pan-American, common	50	16	57	56½	93½	53
19.	Panhandle Prod. & Ref.	..	..	1⅝	*1⅛	6¼	1⅜
20.	Phillips Petroleum	..	†3	23	24½	69⅝	19¾
21.	Pierce Oil common	25	..	1⅜	2	6	1½
22.	Producers & Refiners	50	4	21¼	22⅜	58¼	20½
23.	Pure Oil Co., common	25	6	17⅝	17⅛	32	16¼
24.	Royal Dutch, N. Y., sh	13.40	2.62	44	43⅞	55⅛	40½
25.	Shell Transport	10	x92½	*29	28⅝	41¼	29½
26.	Shell Union, common	..	†1	14¼	13⅝	19¼	12⅜
27.	Simms Pet.	10	..	*7¾	7½	16⅜	6½
28.	Sinclair Consolidated, common	..	†3	18½	18⅝	39⅝	16
29.	Skelly Oil	25	..	16½	16⅝	35	12⅛
30.	Standard of California	25	8	51⅜	52	64⅛	47⅛
31.	Standard Oil of N. J.	25	4	32⅜	33	44⅛	30⅞
32.	Standard of New Jersey, preferred	100	7	116¼	*116	118	114¾
33.	Superior Oil	..	..	2½	2⅜	6⅜	2
34.	The Texas Co.	25	13	41	41½	52⅞	39¼
35.	Texas & Pacific Coal & Oil	10	..	7½	7⅜	24¾	7
36.	Tide Water Oil	100	..	100½	102	144	94
37.	Transcontinental	..	..	2⅜	2¼	14½	2
38.	Union Tank, preferred	100	7	*107¼	*112¼	114	106
39.	White Eagle Oil & Ref.	..	2¼	22½	*22½	30⅝	20¼
40.	White Oil	..	..	⅝	⅛	5⅞	½
	Standard Oil Stocks						
41.	Anglo-American Oil	5	10	14½	14⅜	19¾	13½
42.	Borne Scrymser	100	17	*132	*130	152	110
43.	Buckeye Pipe Line	50	14	77¼	79½	94	77
44.	Cheesebrough Manufacturing, Com.	100	14	225	*220	228	205
45.	Continental Oil	100	8	*36	*35½	50	32½
46.	Crescent Pipe Line	50	6	*16	*16	25	16
47.	Cumberland Pipe Line	100	10	*103	*103	116	80
48.	Eureka Pipe Line	100	8	*96	97½	117½	96
49.	Galena-Signal, common	100	4	60	60½	78	55
50.	Humble Oil & Ref.	25	8	32½	*30¼	41	28¼
51.	Illinois Pipe Line	100	14	*156	*155	171	152
52.	Imperial Oil, Ltd.	25	16	99	98	123	92
53.	Indiana Pipe Line	50	16	90	*90	103	82½
54.	Intl. Pet., Ltd.	..	50	15½	15¼	24¾	13¼
55.	Magnolia Pet.	100	5	133½	137	166	123
56.	National Transit	12.50	16	*22¾	*34	29	22¾
57.	New York Transit	100	12	*92	*93	138	92
58.	Northern Pipe Line	100	25	103	*101½	111	96
59.	Ohio Oil Co.	25	12	55½	55½	85⅝	48¾
60.	Penn-Mex Fuel	25	..	*20	25	28	10½
61.	Prairie Oil & Gas	100	8	166	166	272	152
62.	Prairie Pipe Line	100	8	99	99	117	93
63.	Solar Refining Co.	100	15	*170	*174	212	161
64.	Southern Pipe Line	100	16	92	93¼	116	93
65.	South Penn Oil	100	..	116	120	196	100
66.	South West Pa. Line	100	8	*80	*80	89	66
67.	Standard of Indiana	25	10	55½	55⅛	69⅞	49¼
68.	Standard of Kansas	25	8	39½	*39½	56¼	36½
69.	Standard of Kentucky	25	16	92	91	109⅛	76
70.	Standard of Nebraska	100	20	*215	*210	280	186
71.	Standard Oil of N. Y.	25	16.8	42	41	49¾	35½
72.	Standard of Ohio, common	100	10	*273	278	317	270
73.	Swan & Finch	100	..	*25	*24	38	21½
74.	Vacuum Oil	25	8	49¾	50½	55¼	40
75.	Washington Oil	10	..	*18	*18	28	23
	Miscellaneous Stocks						
76.	Cities Service, banker's shares	..	$21	*12	*12½	18½	12⅞
77.	Gulf Oil Corporation of Pa.	25	6	*50	51	69¼	45¾
78.	Union Oil of Cal.	100	8.2	....	*100	116	90
79.	Maracaibo	..	..	*18	....	....	....

*Bid, no sales. †In dollars. ‡8 per cent in cash and 15 per cent stock dividend declared; now being paid in scrip. xCents per share.

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange weekly was as follows:

Oct. 16	42.80	Sept. 4	44.06	July 24	46.32
Oct. 9	43.29	Aug. 28	44.18	July 17	46.52
Oct. 2	43.53	Aug. 21	44.24	July 10	45.90
Sept. 25	43.48	Aug. 14	43.39	July 3	45.48
Sept. 18	41.42	Aug. 7	43.87	June 26	47.52
Sept. 11	44.78	July 31	42.58	June 19	48.36

BELIEVES CALIFORNIA MENACE FOR SOME TIME

California will be a menace in the overproduction situation for some time to come, according to W. H. Jeffery, president of the Eastern Torpedo of Ohio Co., of Toledo, Ohio, who visited the International Petroleum Exposition and Congress in Tulsa last week on his way home from a trip through the California fields. Mr. Jeffery said a lower sand has been found near Coalinga and that operators are preparing to drill deeper in a majority of the shallow fields.

"Torrance covers as much territory as Long Beach, Santa Fe Springs and Huntington Beach combined," Mr. Jeffery said, "and I feel that field will produce a lot of oil. It may take six months to get any large production, or possibly not so long. Contrary to statements I have seen published, Torrance is not controlled entirely by the large companies as there are numerous one and two-acre tracts owned by individuals and plans are being rushed to develop these small plots. That means intensive drilling. Rigs already are going up all over the field and it looked to me as if the operators were making every effort to reach a pay sand as quickly as possible.

"One feature of the situation in California should not be overlooked. That is the long pumping life of the wells. For instance, in the Monte Bello Field between Los Angeles and Santa Fe Springs, there are wells now pumping 300 bbls. a day which have been pumping for four or five years from a depth of about 3,000 feet."

Mr. Jeffery had on exhibit at the exposition in Tulsa a line of the equipment used by his firm. An interesting feature was the showing of a White motor truck used in transporting nitroglycerin which had been in service for five years and which had traveled 60,000 miles without ever having had a mishap.

Is she the widow of one of the men who worked for you?

WHAT do you do when the office manager, the superintendent, a department head, or a foreman reports that one of your employees has died?

You probably wonder about his family, and take steps to find out if they are in want and if you can do anything. You probably learn that he has saved little or nothing and that his life insurance, if any at all, was pitiably inadequate. Possibly you learn that his friends have passed the hat for the benefit of his widow, his children, or his mother.

Did you ever think what a fine thing it would be each time an employee died for you to set in motion the machinery that would remove the financial worry from the bereaved home and provide funds for the reorganization of the worker's family? Do you realize that you could, by use of the telephone, or telegraph, call in a man who, by temperament and training is fitted to visit that bereaved home in company with you or a representative from your organization—a man who can then and there, or within a few hours, issue a draft to the widow for the money that she needs immediately plus the money that she will need to readjust affairs within the family circle?

Do you realize that such a draft would not be on you, but upon the treasury of an insurance company?

Do you realize the good that payments like these will accomplish?

When you buy Group Life Insurance you are making arrangements to use machinery that will take care of the families of your employees without making those families feel the sting of charity.

To provide Group Insurance for your employees is to do the fine, big, generous thing by them and their families. Group Insurance as conducted by The Travelers Insurance Company functions to the satisfaction of employer, employees, and employees' families. Death claims are paid within a few hours of the time notice is given the Company either at its home office or at one of its many branches.

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Oil Engines Keep Water Out of Holland

Supplanting Wind Mills and are Challenging Steam and Electric Plants in Pumping the Polderlands Dry.

(Copyright, 1923, by Miller Freeman)

In the extensive work of draining the fertile areas that lie below sea level in the Netherlands the oil engine renders unexcelled service. It has won a prominent place in straight competition with electric power, steam and free air.

There is perhaps no part of the world where circumstances present so many obstacles to the use of the oil engine in rivalry with other forms of power as in the Polder drainage of that little corner of Europe which has fought so valiantly against the sea for centuries.

The number of oil engines now in use in that class of work amounts to more than 200, and is still increasing. This subject, which has been specially investigated for Oil Engine Power by S. Snuyff, has never before been covered by any publication in the world, not even Holland excepted. It is republished, in part, by The Oil and Gas Journal by permission.

By far the greater part of what is called polderland was formerly covered by inland lakes to a depth of ¾-foot. These lakes covered a relatively large portion of the different provinces, and there were ample reasons for having them drained. Firstly, the lakes often nibbled away their shores and thus became land-robbers, which in some cases was indeed alarming. Secondly, the land under the lakes consisted mostly of fertile clay, whereas, the surrounding country was covered mostly by arid peat-soil.

Some of the lakes had been formed artificially and as a consequence of the peat industry. Huge quantities of peat have been removed for fuel purposes, and this industry continues to operate on a large scale. Lakes and ponds are therefore still being formed which offer good opportunities for land reclamation. It is not to be wondered at that scarcely any Hollander can see water without feeling a temptation to pump it.

To Drain Zuider Zee

This feeling even has induced the Dutch people to plan the drainage of the Zuider Zee, which is a bay of the North Sea, about 400,000 acres in extent. Indeed, work on this huge scheme has already been started and is now going on steadily.

Many of the polders bear the name of the lake (Dutch: meer) they have replaced. The Haarlemmermeer-polder is by far the largest and most famous of its kind. It has an area of more than 45,000 acres, and the work of reclamation was begun 70 years ago. It is, however, more than 200 years since the idea of draining this huge pool was first expressed, the originator of it having been the famous engineer, Leeghwater. One of the big pumping stations of this polder commemorates his name, and it is just this station that is so interesting from the oil engine viewpoint because the most powerful oil engine drainage plant in Holland is installed there alongside steam and electric power.

In the majority of lake drainage schemes, the reclamation work is started by building a dike around the lake—the "ringdike" on the outer side of which a canal is dug. The pumping stations are made to deliver the water into this canal. As the work proceeds, drainage canals and ditches are excavated, and when the work is completed a vast system of narrow canals runs through the fields in different directions, conducting the water to the main canals, at the end of which the pumping stations are erected. In the completed polder, of course, constant pumping has to be done to keep the water level at the desired datum. In the Haarlemmermeer this is regularly lower than 17 feet under mean sea level, but alters somewhat with the crop conditions and the different seasons. The quantity of water to be pumped is not only dependent upon rainfall, but to a great extent also upon the amount percolating upwards through the soil leakage and the use of sluices.

In former times the old windmill was the only source of power available. On the Haarlemmermeer undertaking steam was used for the first time, powerful steam engines being installed in three stations. One of these stations, the Qruquis, still contains the original engines which are now 70 years old and regularly kept in working condition. They represent good examples of the lasting value of excellent workmanship. As land reclamation proceeded in Holland more and more steam pumping plants were built.

The pumps in use covered a variety of types. The oldest devices were the paddle wheel and the water screw, driven by gearing. When, however, the centrifugal pump was developed, most steam plants were equipped with this type, the pump being driven either directly or by means of belting.

Windmills for Small Plants

In considering the advantages the oil engine can render in polder drainage engineering and on the other hand the difficulties that are apt to be met in its application, we have to realize in the first place that wind power is used to a very great extent in the smaller plants. Wind costs nothing, and the old windmill evolved in the course of hundreds of years may be regarded as a motor of fair efficiency. So it has held its own against the competition of the modern windmotor, steam, oil power and electricity, but there is a question whether it will stand the trial in the long run. The number of old mills is now decreasing, and in many cases the modern steel wind motor, generally of American make, pushes it out, chiefly on account of the reduced cost of upkeep and the automatic operation.

The competition applies only in cases where 6-10 h. p., and in some cases 20-25 h. p. are required. The oil engine is not yet the most dangerous competitor in those powers, the keenest competition being presented in that range by the electric motor. Electrification schemes have made vast progress in Holland, and stations in the neighborhood of a cable or high-line are generally operated electrically because the costs of installation are low in such case.

The inroads of modern power machinery have aroused a feeling of uneasiness amongst those who delight in the typical Holland landscape, in the charm of which the old windmill plays no little part. It cannot be said that the fear is unfounded, and the question of how to harmonize the requirements of engineering progress with the crown of the famous Dutch landscape —which the old windmill indeed is—provides one of the most vexing problems the Dutch engineer is now facing.

In the medium-sized plants, as between oil engines and steam the former is gaining favor. The oil engine requires less operating labor, which is particularly important when the station is not pumping continuously, during the whole of which time the engineers must be kept at hand. Another important advantage of the oil engine is its ability to start at very short notice. In the polder business this is of considerable benefit.

When rain starts to fall one does not know how long it will last. With the steam plant one is obliged to wait till the water shows a rise that makes pumping necessary and then make up steam, with the possible consequence that a big rise may have taken place before pumping begins, and this may be very detrimental to the polder. The oil engine, on the other hand, can be put into service immediately and stopped when the water level has sunk sufficiently. Indeed, with an oil engine, it is possible to have the polder level constantly at the right mark, which is impossible with steam pumping except at great cost.

The writer knows of a case where a Diesel engine driving a centrifugal pump was running one whole year day and night, without a single stop, and after a short overhaul was again put into operation for another year.

For a comparison between the different power systems the Haarlemmermeer polder presents an interesting case. In the three stations, Lijnden, Leeghwater and Qruquius, one finds steam, oil engine power and electricity. In the Leeghwater pump house the original steam engine was superseded in 1912 by a Werkpoor Diesel engine. In the Lijnden plant the original radial pumping engine was replaced some 30 years ago by two vertical Corliss engines, each direct connected to a centrifugal pump. Later, one of these engines was dismantled to make place for a three-phase electric motor, connected to the provincial power line. The remaining Corliss engine in the same station is now nearly 30 years old and much less economical in operation than the electric motor. Indeed it serves only as a standby in third place.

At present the Diesel engine of the Leeghwater station plays second role to the electric power, but it is indispensible for it provides an economical means of pumping when the electric power fails either on account of line trouble or through a fault on the motor, it assists on the load when extra pumping is needed and, moreover, it steadily keeps the contact rate low. The Leeghwater Diesel engine is responsible for some 21-22 per cent of the total water discharge, the electric motor taking 72 per cent, the Lijnden steam engine about 5 per cent and the 70-year-old engine of the Qruquius, which acts as the fourth reserve, about 1 per cent. If the price of fuel oil falls a little, it seems doubtful that the electric motor will retain its place in the first line.

Pumping 100,000,000 Tons

The Leeghwater engine is of the four-cycle type with four cylinders and turns at 180-200 r. p. m., developing 360-400 b. h. p. It is direct coupled to a centrifugal pump. Installed in 1912, it has been handicapped by unfavorable conditions arising from the centrifugal pump it is connected with. This pump shows the phenomenon that the efficiency and water discharge are reduced after a certain period of operation and remain on the lowered basis. Though the investigation of the case is still being carried on one is inclined to ascribe the fault to weeds collecting on the pump vanes. This defect is a drawback to the oil engine because in order to increase the quantity of water delivered, a tendency exists to put the motor under a heavier load than is consistent with the requirements of a well-conducted maintenance.

In all, the Haarlemmermeer polder requires some 100,000,000 tons of water to be pumped each year, demanding more than 3,000,000 b. h. p. hours. Each cent (Dutch) difference in power economy per b. h. p. hour means 30 000 guilders ($12,000) more or less in polder charges each year. This sum is certainly big enough to have the operation of the Diesel engined pump studied constantly with the utmost care.

The Haarlemmermeer polder board is now investigating the improvement of the drainage plant, and the installation of a second Diesel engine in the Leeghwater station is being considered.

Most of the oil engines in use in Holland for the purpose of polder drainage have been supplied by Werkspoor, the number of their engines now totaling some 35, ranging from 20 h. p. to 400 h. p. and pumping against a head of 3-17 feet. Nearly all these plants are working with centrifugal pumps, but some have been equipped with the Wood-screw pump.

Diesels to Rescue

When, in 1916, a vast part of the North-Holland polderland was flooded by the Zuider Zee breaking through the dikes after a protracted storm from the northwest, energetic measures were taken to pump the polders dry again in the shortest possible time. At one point a Diesel engine, which was available at the Werkspoor works, was erected in record time, hooked up to a pump and set to work even without protection against the weather.

Quite a number of pumping plants have been equipped with Deutz engines, mostly of the Diesel type, but some also of other types. The number of these engines installed for polder drainage amounts to 31 of the Diesel type, four of the Brons design and three of another style. The most important of these plants is that of the Den Hitsert polder in South Beyerland, where a Diesel engine of 300-360 b. h. p. is installed, driving a centrifugal pump directly at 187 r. p. m. The pump throws about 60,000 gallons of water per minute against a head of 12 feet 6 inches. Another example is the direct-connected engine at Laag-Hemaal, which is of the horizontal type and develops 140-168 b. h. p. at 190 r. p. m., pumping about 50 000 gallons per minute against 5¾-feet head. A horizontal Deutz Diesel engine drives two water screws by means of belting at the Reiderland polder of Winschoten. It is of 180-210 b. h. p. and is provided with a friction clutch. These water screws are of the Archimedes type, which was, and is still, used extensively with the old windmills. Several old steam plants are working with this rather costly and cumbersome, but not inefficient style of pump.

A small, but interesting plant, is the old windmill of Steins, driving a paddle wheel, where a 40 b. h. p. single-cylinder horizontal Deutz Diesel engine was installed in 1914 to drive the wheel when the wind fails. The engine is calculated to deliver the same quantity of water as the mill can when the sails are spread to a strong breeze.

TAKING UP PIPE LINE

PONCA CITY, Okla., Oct. 15.—Twenty-two miles of pipe line, constituting the northern portion of the trunk line of the Oklahoma Natural Gas Co., in the old Morrison (now Watchorn) Field, is being taken up by the Oklahoma Natural Gas Co. The Watchorn vicinity of the Otoe Indian country was formerly one of the chief gas producing sections in this part of the State and has been an asset of the Oklahoma Natural for 10 to 12 years. The pipe line being taken up was laid about 10 years ago. Evidently the company believes that particular territory is no longer a commercial gas district. Other oil men maintain that gas in commercial quantities will be found somewhere in that vicinity in the Wilcox sand.

Progress in Developing Salt Creek Field

Decline of Gas Pressure and Gradual Decrease in the Produc ion Per Well; Providing for Pumping.

By F. B. Taylor

CASPER, Wyo., Oct. 13.—Salt Creek Field has come through the flood with only small damage compared to the vast amount of material and property that was in danger. To the stranger to this region, this great field is more or less a name only and the actual size of the operation is rather dim in the mind because it takes an actual visit and exploration of the field to get even an adequate idea of the vast resources required to carry on the work of development here.

The Salt Creek Field is operated mainly by the Midwest Refining Co., through a number of smaller oil firms which are subsidiaries to the Midwest and that firm is in turn a part of the Standard Oil Co. of Indiana. The Midwest and subsidiaries control practically all the central part of the field, but several other companies, both the so-called Standard interests and independent firms, own valuable properties within the productive area of the structure.

A list of the firms in the field with the number of wells and production at the end of last year follows:

	No. Wells	Daily Prod.
Bessemer Blackstone	2	35
Blackstone Salt Creek	2	416
Bonfils Interests	3	650
Burke Oil Co.	2	1,265
Boston-Wyoming	12	1,129
*Consolidated Royalty	..	498
Domino Bessemer	3	302
*Duthie Interests	..	123
*Eclipse Oil Co.	..	28
Empire Petroleum Co.	2	5,939
Eureka Petroleum Co.	1	S.D.
Five Tribes Oil Co.	1	10
Fensland Oil Co.	2	311
Frantz Corporation	3	79
Gigantic Oil Co.	1	6
Marine Oil Co.	4	347
*Isenberg & Littlefield	..	23
*Kinney Coastal Oil Co.	..	126
Midwest Oil Co.	99	7,976
Mutual Oil Co.	1	64
Mosher Oil Co.	2	33
Mosher Salt Creek Co.	1	34
Mountain & Gulf	26	2,695
Ohio Oil Co.	45	2,489
Pacific Oil Co.	1	67
Parkman Oil Co.	2	324
Producers & Refiners	25	2,042
†Sinclair Interests	5	498
Salt Creek Consolidated	54	2,959
Staley Syndicate	5	448
The Texas Co.	22	....
E. T. Williams Oil Co.	..	818
Wyoming Associated Oil Co.	140	12,897
Wyoming Oil Fields Co.	50	4,075
Wyokana Oil Co.	12	281
Western States O. & L. Co.	7	512
Utah Oil & Refg. Co.	4	610

*Some companies have an interest or a royalty that entitles the firm to production while the wells are listed as belonging to another firm.

†This item does not include any Teapot property.

Great Gasoline Plant

Salt Creek claims the largest gasoline plant in the world; 18 booster stations take the gas from the casingheads at the wells and send it through pipe lines from all parts of the field to the gasoline plant, so that at present this plant is handling around 30,000,00 feet of gas daily with a daily output of 60,000 gallons per day.

It should always be remembered in considering the Salt Creek Field, that this area too is located about 50 miles across the desert from the nearest railroad until a few weeks ago when the first train over the new railroad was run into the lower end of the field. The gasoline made at this big compressor plant is sent into Casper through a 4-inch pipe line laid for this purpose but when the gasoline plant was first started and the gasoline first sent through the line, it was found that this high test gas was much too light for pumping through pipe lines of the length required between Casper and Salt Creek.

The Midwest then built a topping plant at the gasoline plant where naphtha could be skimmed from the crude and blended in the field with the lighter production of the gasoline plant, thereby giving the product body enough to stand shipment through the pipe line. Later this method was abandoned and a pipe line was laid to ship naphtha from the Casper refineries to the gas plant at Salt Creek for blending with the product of the gasoline plant before shipping through the pipe line to Casper. This is the plan now in use and the refineries at Casper make the naphtha that is then pumped back 50 miles to Salt Creek and mixed with the production there and returned to Casper as gasoline from the plant.

Gas as Refrigerant

The residual gas is used mainly in the field for fuel purposes at the drilling wells, camps and pump stations. However, a gas line is about ready now to carry residual gas to Casper, where it will be used under the boilers at the refineries. Several experiments have been made to find a use for this residual gas and trials with it as a refrigerant, instead of ammonia, have shown that it can be used as such, yet the cost is slightly higher than the ammonia process at present.

The gas plant has a present payroll of 150 employes and these workers are not included in the population of Salt Creek town for the gas plant is a unit of itse.f, having houses and a large dining hall on the plant property| The dining room seats 200 people.

The Ohio Oil Co. and the Carter Oil Co. have both followed the lead of the Midwest and these two firms are now completing two large compressor plants in the Salt Creek Field to take care of the gas production on their holdings. These plants will also receive blending gasoline from the Midwest.

Gas Pressure Drops

A careful watch has been kept on the field gas pressure during the past years and it is now certain that the gas pressure has gone down considerably since 1918. It should be kept in mind that the Salt Creek Field has no gas wells in the whole area, the gas and oil come in together, and each time a well is drilled in the field, the gas production is lessened by the amount required to flow that new producer. As an instance, it took 1,000 feet of gas in December, 1922, to lift a barrel of oil to the tanks, while in July of the present year it required 2,000 feet of gas to life a barrel of oil to the tanks. Last month, when the field went on 65 per cent production it was computed that it took about 1,800 feet to lift a barrel of oil.

The lifting charge in the field will run about 2½ cents per bbl. with the wells flowing as they are now, but the day is sure to come when the wells of the field must be pumped and then it is computed that the lifting charge will be about 30 cents per bbl. instead of 2½ cents. There are 94 stations in the field that pump oil to the main line station at the north end of the field and from there it is sent through the trunk lines to the Casper tank farm. Besides the Midwest lines, the Illinois Pipe Line Co. has an 8-inch line to Illco, on the railroads, the Western Pipe Line Co. has an 8-inch line to the Midwest tank farm, where the Western has two 55's and the E. T. Williams Oil Co., under the name of the Central Pipe Line Co., has an 8-inch line to The Texas Co.'s refinery and tank farm east of Casper. The Producers & Refiners has an 8-inch pipe line to Casper, which extends to Parco in southern Wyoming, taking in the oil from the Lost Soldier leases of the Producers & Refiners on its route.

Decrease in Production

The gradual decrease in production per well is shown clearly in a series of tests carried over several years, in December 1921, 208 wells that were tested showed an average production of 335 bbls. and in July, 1923, 502 wells showed an average of 226 bbls. On State and patented lands in the field, 149 wells averaged 218 bbls. daily last July, giving a total of 651 wells under test this past summer. From these tests it is certain that the gravity of the crude is going down somewhat. However, the rearrangement of the lines of the Midwest and its subsidiaries, which has been completed recently with the approval of the Department of the Interior, will result in the saving of at least 6 per cent more oil recovered than would have been the case had line wells been drilled as though each firm were separate and obliged to protect its boundaries.

The Midwest is now running about 60 strings of tools in the field and other firms about 78 strings all told, making about 138 strings active at present.

Looking into the future, the Midwest appears to have exceptional foresight. This firm has looked ahead for the coming 10 years and is now preparing, for the time when the wells will have to be pumped, by building a great reservoir near Shannon at the north end of the field, which will hold 21,000,00 bbls. of water when completed. This water will be collected during the wet season by the flow of Salt Creek and its tributaries, and impounded in this great reservoir to supply the needs of the field and the camps during the dry season. At present an inadequate supply is pumped from Casper at heavy expense through a pipe line formerly used for oil.

The dam at this reservoir is 500 feet in length by 41 feet high and is built by interlocking steel piling, reinforced by haydenite concrete, a material found in the field and which is burned there and makes an excellent concrete. This dam will hold a three years' water supply for the field when filled and an outlet through a tunnel has been provided that will take care of any unusual floods.

Town Without Politics

Home Camp or Salt Creek town itself is another undertaking that stands as a credit to the Midwest organization and especially to Colonel Burke Sinclair and the Department of Industrial Relations of which Colonel Sinclair is head. This town is not incorporated so has no local political situation to cause trouble. It has no dives or joints of any kind because the Midwest owns the land and all applications for all industries and businesses that wish to locate there are examined closely to see whether they might cause trouble and if so, the application is refused. About 3,000 people call this little city their home although the Midwest owns every house and building in the town. There is an up-to-date fire department costing $12,000 to protest the properties; a new hospital is now being completed that cost $43,000 and an additional $6,000 for equipment. This will replace a good sized building that is now used as a hospital. There are two modern schools in the town, one a high school and the other a grade school, and a teachers' dormitory for the women teachers in these schools has just been completed at a cost of $15,000. At present there are 325 grade scholars and 75 high school students.

The inhabitants at Salt Creek town obtain free water and gas and the rental fee of a 2-room house runs from $7.50 to $15.00 per month, depending on location, etc. Electricity costs $2.50 per month and bath rooms add a like sum to the rental of a dwelling. In Casper these same houses would bring anywhere from $50 to $100 per month.

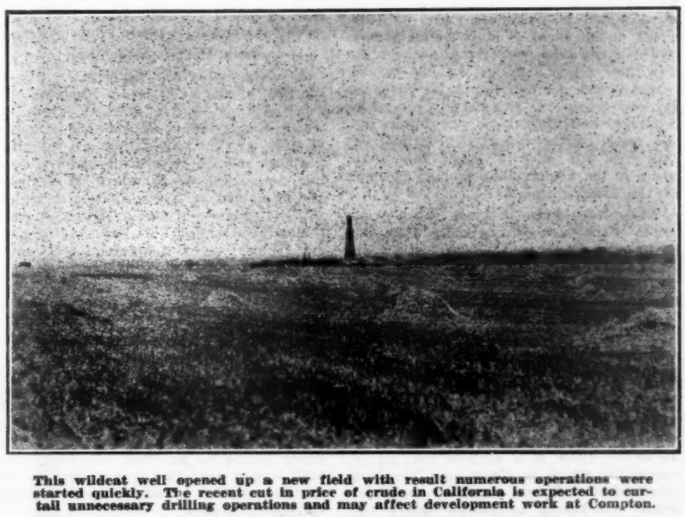
Eighteen Other Camps

Besides the Salt Creek town camp, the Midwest has 18 other small towns scattered over the field, for it would entail too much travel were all the field workers to be housed at the Home Camp and taken to their work daily. These outlying camps are all built on the same order as the Home Camp and are as well equipped as circumstances will permit.

For last August the wages of the workers in the Salt Creek Field for the Midwest amounted to $141,489 and in ad-

(Continued on Page 117)

UNION OIL CO.'S NO. 1 CALLENDER AT COMPTON, CALIF.



This wildcat well opened up a new field with result numerous operations were started quickly. The recent cut in price of crude in California is expected to curtail unnecessary drilling operations and may affect development work at Compton.

Continued Firmness Feature of Group 3

Gasoline Tank Wagon Reductions in Surrounding Territory Brings Fear of Similar Action in the Middle West. Crude Market Unsettled.

By C. O. Willson

Still awaiting several developments which apparently are nearer realization than they were a week or two weeks ago, refined markets in Group 3 remained unchanged during the past week. A comparison of prices carried in this week's market pages covering Oklahoma refinery quotations with those of last week, shows that there was not a single important change. Approximately the same situation continues in other refining areas of the Mid-Continent area.

This market firmness which has now extended over six weeks is not the least of the remarkable developments which have featured Group 3 refined market during the past year. It is doubtful if anyone in close touch with market conditions six weeks ago would have predicted the firm prices in the face of the important changes in the crude and tank wagon markets which under normal conditions would have been reflected at least in a small way in Group 3 refined markets.

Varied reasons are given for this situation, which in the case of gasoline might almost be termed strength when the generally weak market of that product during the year is considered. In the final analysis, however, the situation has as its base a return to a more healthy and normal relationship in regard to supply and demand which has prevented further declines but which, with the exception of natural gasolines and fuel distillates, has not permitted any important price advances. Although there are reports to the contrary it is certain that a large majority of refiners in Group 3 are moving their gasolines, kerosenes and fuel oils in satisfactory quantities and this situation alone accounts for the fact that they have not reduced their prices. The large majority of refiners of this group do not want to accumulate any stocks at this time and many frankly state that if they were not moving their output at present prices they would lower them until they did.

Look for Lower Prices

In this connection it can also be said that a majority of refiners are uneasy as to the immediate future of their markets on practically all products, with probably a majority expecting lower prices rather than higher before the refined markets and those of the industry generally start upward. This feeling also accounts for the average refiner being adverse toward the accumulation of stocks.

Perhaps the most discussed matter affecting refined markets has been the crude situation. There was no important positive development during the past week which would throw any light on this much confused situation except the action of Magnolia Petroleum Co., which announced a new price schedule for North and Central Texas crudes and at the same time agreed to take 100 per cent of their runs. Similar action with different price schedules on some gravities were made effective in North Texas by The Texas and Humbles companies last week. The Magnolia price with five gravities range from 50 cents to $1.25.

Possibly because they do not have anything else of a definite nature on which to base their speculation, there are a large number of refiners who believe that the new Magnolia prices will approximate those which will be made effective in Oklahoma and Kansas when the major crude purchasing companies get ready to take 100 per cent of their runs. The Magnolia for some time has had their new Texas prices in effect in regard to the three lower gravities in the Healdton, Okla., district, the only section in which the company buys the lower gravity crudes.

Would Aid Refiner

The new schedules of $1.10 for 33° to 39.9° gravity and $1.25 for 40° and above, if adopted in Oklahoma, would constitute a 20- and 25-cent reduction under present prices as posted by the Prairie Oil & Gas Co., Sinclair Crude Oil Purchasing Co., and other large purchasing companies.

Such a scale of prices would undoubtedly aid the average independent refiner of Oklahoma and Kansas and, if they paid no premiums, would probably be low enough to permit many plants to operate without losses based on present refined markets. The Magnolia schedules, in fact, approximate prices paid by a few independent refiners in Oklahoma and Kansas who were in a position to buy their crude supplies without regard to the posted price of the major purchasing companies. It is generally conceded, however, that, fortunately or otherwise, the needs of the independent refiner of this area will play a lesser role than usual in the final crude price adjustments of the Mid-Continent.

Those who keep in close touch with crude market conditions state that the $1.10 and $1.25 prices previously mentioned are not low enough to permit competition with California crudes with their new prices which became effective last week. It is apparent that it is not necessary that the large part of the Mid-Continent crude be reduced so as to compete with California crudes. The Mid-Continent area still has a large refining and marketing area which it can hold without reducing its crude prices much, if any, below their present levels. However, there is a surplus varying in quantities which in times past has been disposed of at distant points by the major crude purchasing companies where the California crude competition for many months has been very apparent. The Prairie Oil & Gas Co. has been the largest seller of Mid-Continent crudes to the Eastern plants and its inability to maintain its usual deliveries to Eastern refiners has been known for months.

In view of this situation considerably lower crude prices are inevitable if the surplus crude of the Mid-Continent area is to be disposed of and lost marketing territory regained.

The crude market of the immediate future, so far as this group is concerned, apparently entirely hinges on the attitude of the larger companies as to how this surplus crude will be handled. Although authorities disagree, it can be said that a large part of the independent refining industry of this group are anticipating substantially lower crude prices.

Tank Wagon Reductions

Another important development since the first of the week was a break in the gasoline tank wagon markets, some of which directly affect the refining industry of this group, but which are of importance mainly because of possible similar action in the Standard of Indiana and Standard of Nebraska territories in which the trade of this territory is particularly interested. At this writing several important reductions had already been made and it was apparent that gasoline tank wagon prices were to be reduced from 1 to 3 cents throughout the entire East and Southeast. There is little danger of these tank wagon reductions being reflected in full in the refinery prices in the area affected, but it is rather conclusive evidence that higher prices are highly improbable and that the trade faces a period of several months of exceptionally low tank wagon and refinery prices on gasoline. By some the tank wagon reduction is considered a reflection on the reduction last week in California crudes.

This development in the tank wagon markets of the East and Southeast caused further apprehensions regarding those of the Standard of Indiana territory. As was explained in these columns last week, there have recently been numerous reductions at scattered points in the Standard of Indiana and Standard of Nebraska territories. These local situations are in themselves a cause of uneasiness regarding the entire market structure. In this connection the Chicago correspondent of The Oil and Gas Journal advised today (Wednesday) that the marketing division of the Indiana company has been busy for several days making changes in their tank wagon prices necessitated by competition.

The only conclusion possible from this situation, both within and without the marketing territory in which Group 3 is particularly interested, is that a general gasoline tank wagon reduction has changed from a possibility to a probability. If it develops it means a direct loss in the marginal contracts of this area with a possible weakening effect on the spot market.

Gasolines and Blends

The most noticeable development in the gasoline situation of Group 3 during the past week was the continued scarcity of the high gravities. Some plants are still making deliveries on export orders for 64-66, 375 gravity placed last month. Although there have been no large orders it is also true that there has been a consistent domestic movement of this grade and other high gravities. These orders have been for one to five cars, but in the aggregate they have taken practically all that has been available during the past two weeks. The scarcity of 68-70 grades are especially noticeable and some plants are sold up over the balance of the month.

There was no apparent change in the movement of New Navy during the past week. Sales are now practically confined to the New Navy grade, the season for the 56-58, 450 grade having closed. The trade is divided as to the probable price trend over November and the remainder of the year. Some business has been placed over November based on present prices and some slightly under today's market. More plants state that they have regained some of the trade territory they lost to outside competition during the summer months. Although the spot market remains 6½ to 6¾ cents on New Navy several refiners are getting 7 cents and a few refiners above that amount. The naphtha market is unchanged.

The movement of blends continues to improve. It is difficult to obtain any accurate gauge to the open market prices for this product. The specifications vary greatly and the movement is largely confined to regular channels. Buyers in many cases have particular specifications which they require of the seller and in many cases they are willing to pay substantially higher prices than the average blend price to secure the grade of product they desire. Present blend prices are low in view of the market on natural gasolines and naphthas.

Natural Gasolines

Prices on natural gasolines are unchanged. The leading manufacturers state that the satisfactory demand of the past two months has continued over the past week. One of the largest manufacturers sold two train loads of Grade C during the past week at 7¾ cents. This company has sold practically all of

(Continued on Page 111)

REFINED MARKET BAROMETER

Tank wagon reductions applying to practically all consuming areas east of the Rocky Mountains with the exception of the States of the Middle West featured the developments of the past week which have important bearing on refined markets. It is believed that reductions already announced presage another general revision of gasoline tank wagon prices which in several areas will probably be reflected in lower prices at the refineries. There were no important price changes of a general nature in refined markets with a generally fair demand for all products. There was a heavy movement of fuel oil reported from several areas with a weak demand and lower prices in some. Kerosene was generally firm with ½ cent advance in export prices. Strong demand for natural gasolines. Wax scarce with higher prices where there was any change. Other products unchanged.

Mid-Continent—Gasoline prices generally firm with a scarcity of high gravities which brought slightly higher prices in some areas. Movement of New Navy generally improved. Fair to strong demand for kerosene and distillates with no important price changes. Natural gasoline demand strong with prices unchanged. Fuel oil firm in Group 3 but weak and lower prices in other areas. Neutrals unchanged.

Atlantic Seaboard—Gasoline tank wagon reduction of 1 to 3 cents by several companies which will probably become general in this territory was brought about by lower prices at the refineries. Kerosene export price advanced ½ cent. Further reduction in gasoline export prices expected. Electrical appliances cut into demand for heating apparatus. No important changes in other domestic markets. Receipts of California crude and refined oils heavy with falling off in Mexican shipments.

Chicago—Local price cutting prevalent in gasoline. Generally lower prices may result. Chicago gasoline market quiet. Kerosene demand firm. Oil burner installations growing. Fuel oil dull. Gas oil demand irregular with prices low. Demand for lubricants good. No general change in tank wagon following kerosene reduction.

Gulf Coast—Best movement of the year shown by zero cold test oils. Low stocks cause activity. Continued strength for all lubricants expected. Plants running up to capacity. Coastal refiners see profit with good demand for lubricants and cheap crude in sight. Fuel oil and gas oils weak. Gulf Coast crudes reduced 25 cents by Gulf Pipe Line Co.

Pennsylvania—Refined market outlook not encouraging. Prices firm, with wax advancing, but demand and inquiries fall off. Gasoline weaker. Kerosene position stationary. Cylinder stocks stronger. Neutrals slow. Fuel oil demand off.

tail unnecessary drilling operations and may affect development work at Compton.

(Continued on Page 111)

The Standard of Quality

Men who carry a salesman's grip or a sample case soon learn one truth —that the purchasing agent who is a confirmed "shopper" isn't necessarily the most economical official for his company.

"Shopping" necessitates a continuous change of standards. Neither the "shopper's" working-force nor his sales representatives can ever go to work in the morning with the reassuring confidence that the materials they use or sell are the same as the night before. Life is one long readjustment for the shopper —and usually one long series of "adjustments" for the credit department.

The marketing of petroleum products doesn't escape this rule.

The far-sighted jobber who educates a refiner to meet his exact needs, after first assuring himself that the refiner can deliver day-in-and-day-out QUALITY, is dollars ahead of the "shopper." HE CAN CONFINE ALL HIS ATTENTION TO SELLING and that's where the worth-while profits are.

Sixty-five of the 216 representative jobbers to whom a recent questionnaire was sent, replied that they stock Pennsylvania oils **exclusively,** either because of demand or on account of the enduring service they give their customers.

Others who do not actually handle Pennsylvania products admit that they use it as the standard to show how closely their oil approaches the standard Pennsylvania quality.

No better oils come out of Pennsylvania than

PENN AMERICAN

Dependable Petroleum Produc

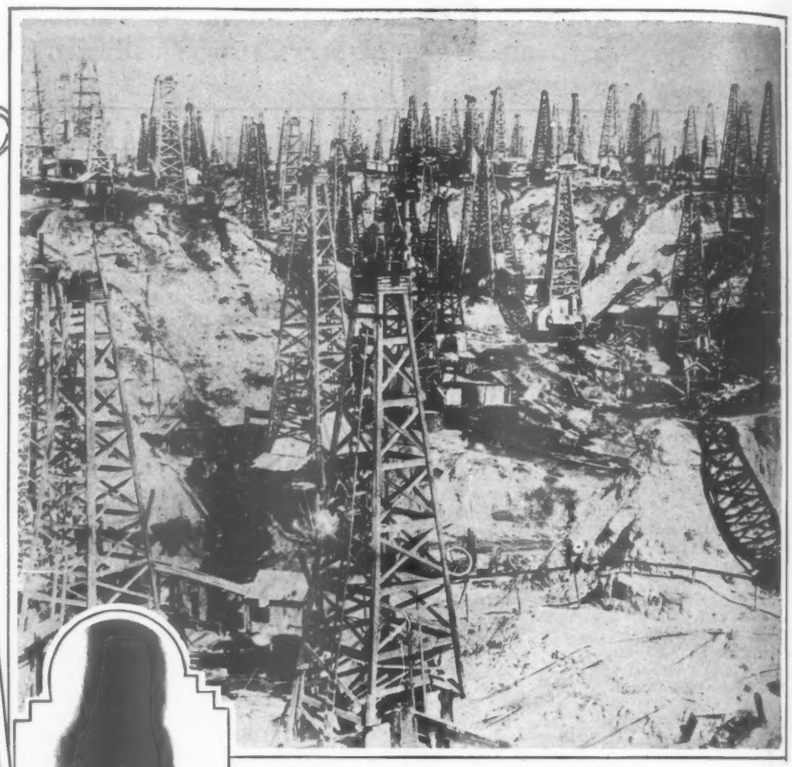
Their unvarying high quality makes satisfied customers whose repeat business comes easily.

"The tightest price on the rightest product" is the foundation of Penn American's policy of jobber co-operation.

PENN AMERICAN REFINING COMPANY
Refiners of Pennsylvania Petroleum
Home Office; OIL CITY, PA.
Refineries: Oil City and Rouseville, Pa.
Established 1886

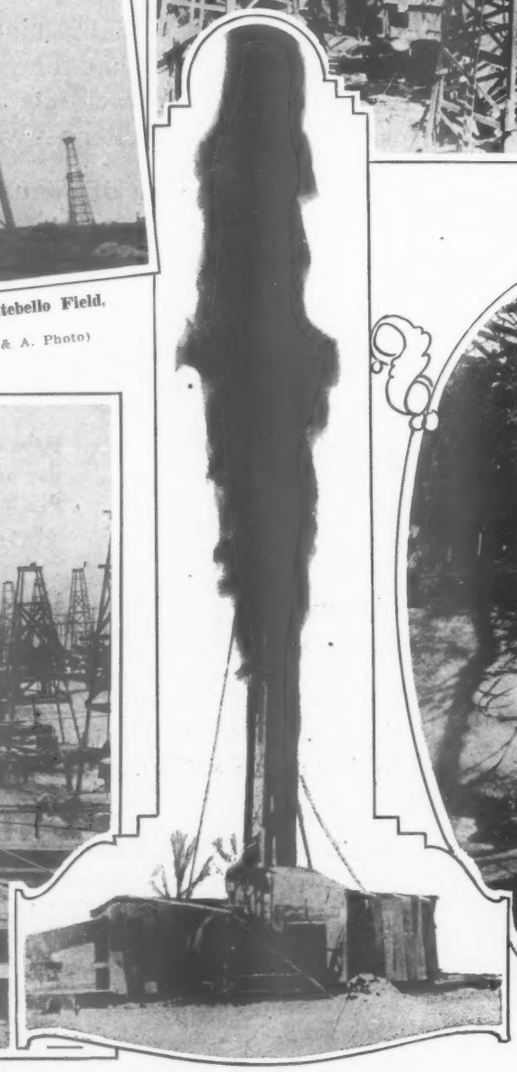
Among the Derricks in Widely Different Oil Fields

Highest Oil Derrick in World, Montebello Field, Calif. —(P. & A. Photo)



Scene in the Burma Oil Field —(P. & A. Photo)

Control Pump of Well in Ocean, Summerland, Calif. —(Underwood & Underwood)

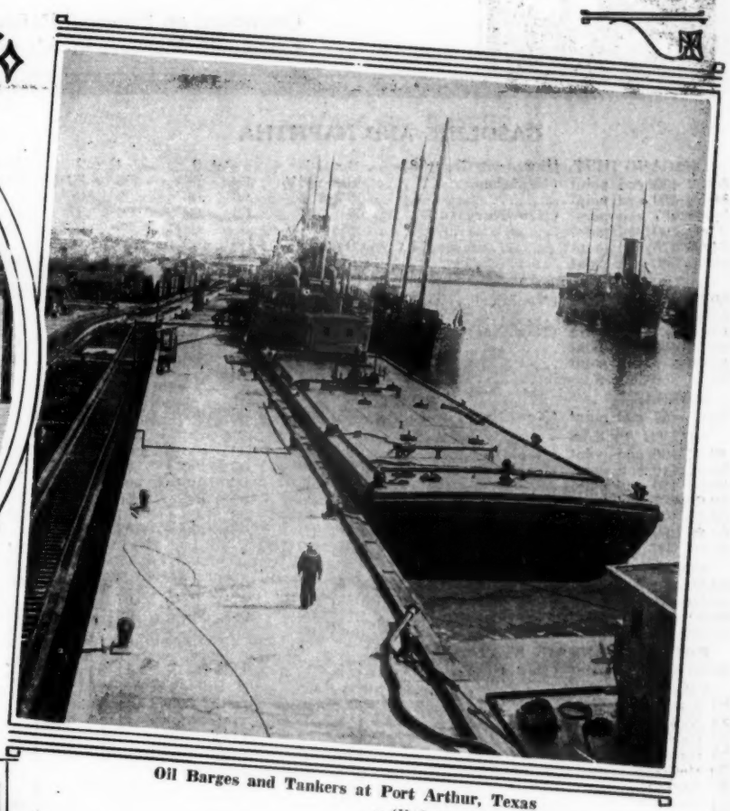


Illinois' Greatest Gusher, Clark County —(P. & A. Photo)

A Creek of Oil from Flowing Well

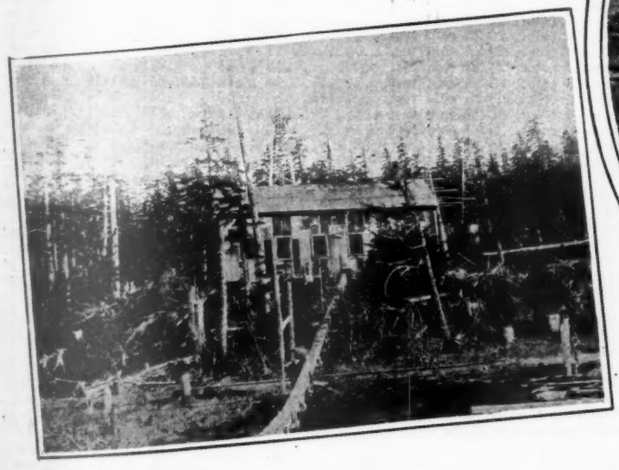
With the Oil Men in Texas, Alaska and Russia

Loading Crude in Tank Cars at Barberhill, Texas
—(Photo by F. G. Allen)



Oil Barges and Tankers at Port Arthur, Texas
—(Underwood & Underwood)

New Town in Texas Oil Field
—(Underwood & Underwood)



Power House, Chilkat Oil Co., Katala, Alaska
—(Int'l Photo)

Scene in Baku Oil Field
—(Underwood & Underwood)

Control Pump of Well in Ocean, Summerland, Calif. —(Underwood & Underwood)

Illinois Greatest Gusher, Clark County —(P. & A. Photo)

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

GASOLINE AND NAPHTHA

CHICAGO DIST. (Based on Group 3)—	Oct. 16		Oct. 9		Oct. 2	
50-52 450 end point (Naphtha)	.06	.06½	.06	.06½	.06	.06½
56-58 450 end point	.06¼	.06½	.06¼	.06½	.06¼	.06½
58-60 437 end point (New Navy)	.06½	.07	.06½	.07	.06½	.07
60-62 400 end point	.08¼	.08½	.08	.08½	.08¼	.08½
64-66 375 end point	.09	.09½	.09½	.09¾	.09½	.10
68-70 360 end point	.10½	.11	.10½	.11	.10½	.11
OKLAHOMA (Group 3)—						
50-52 450 end point (Naphtha)	.06	.06½	.06	.06½	.06	.06½
56-58 450 end point	.06¼	.06¾	.06¼	.06¾	.06	.06½
58-60 437 end point (New Navy)	.06½	.06¾	.06½	.06¾	.06¼	.06¾
60-62 400 end point	.08¼	.08½	.08¼	.08½	.08	.08½
64-66 375 end point	.09¼	.09¾	.09¼	.09¾	.09¼	.09½
68-70 350-365 end point	.10¾	.11	.10¾	.11	.10¾	.11
KANSAS—						
58-60 437 end point (New Navy)	.06¾	.07	.06¾	.07	.06¾	.07
NORTH TEXAS—						
48-52 450 end point (Naphtha)	.06	.06¼	.06	.06¼	.06	.06¼
50-52 440 end point (Naphtha)	.06	.06½	.06	.06½	.06	.06½
56-58 450 end point	.06	.06½	.06	.06½	.06	.06¼
58-60 437 end point (New Navy)	.06½	.06¾	.06½	.06¾	.06¾	.06¾
60-62 400 end point	.08	.08½	.08	.08½	.07¾	.08¼
64-66 390 end point	.08¾	.09	.08½	.09	.08½	.09
64-66, 375 end point	.09¼	.09½				
NORTH LOUISIANA—						
56-58 450 end point	.06¾	.07	.06¾	.07	.06½	.07
58-60 437 end point (New Navy)	.07¼	.07½	.07¼	.07½	.07	.07¼
60-62 400 end point	.07¾	.08¼	.08¼	.08½	.08¼	.08½
64-66, 390 end point	.08½	.08¾				
ROCKY MOUNTAIN STATES—						
58-60 437 end point (New Navy)	.11¼		.11¼		.11¼	
PENNSYLVANIA—						
52 Naphtha	.11		.11		.11	
54 Naphtha	.11¼		.11¼		.11¼	
56 Gasoline	.11⅜		.11⅜		.11⅜	
58 Gasoline	.11¾		.11¾		.11¾	
60 Gasoline	.12¼		.12¼		.12¼	
62 Gasoline	.14		.14		.14	
64 Gasoline	.14½		.15		.15	
66 Gasoline	.17		.17½		.17½	
68-70 Gasoline	.18		.18¼		.18¼	

NATURAL GASOLINE

CHICAGO DIST. (Based on Group 3)—	Oct. 16		Oct. 9		Oct. 2	
Grade A, 72-78 under 375 e.p., rec. 90%	.07¾	.08¼	.08	.08¼	.07¾	.08
Grade B, 76-82, 375 end point, rec. 85%	.07½	.08	.07¼	.07¾	.07¼	.07¾
Grade C, 80-88, 350 end point, rec. 78%	.07½	.07¾	.07	.07½	.07	.07½
OKLAHOMA (Group 3)—						
Grade A, 72-78, under 375 e.p., rec. 90%	.07¾	.08	.07¾	.08	.07¾	.08
Grade B, 76-82, 375 end point, rec. 85%	.07¾	.08	.07¾	.08	.07½	.07¾
Grade C, 80-88, 350 end point, rec. 78%	.07½	.07¾	.07½	.07¾	.07½	.07¾
Grade D, 88-92, 350 end point	.07½	.07¾	.07½	.07¾	.07½	.07¾
NORTH TEXAS—						
80-84 compression	.07¼	.07½	.07¼	.07½	.07	.07¼
84-90 compression	.07¼	.07½	.07¼	.07½	.07	.07¼
72-76 absorption	.07½	.07¾	.07½	.07¾	.07	.07½
76-82 absorption	.07½	.07¾	.07½	.07¾	.07	.07½
NORTH LOUISIANA—						
Grade B, 76-82, 375 end point, rec. 85%	.07½	.07¾	.07½	.07¾	.07¼	.07¾

MOTOR NATURAL GASOLINE (BLEND)

CHICAGO DIST. (Based on Group 3)—	Oct. 16		Oct. 9		Oct. 2	
60-62 450 end point	.06¼	.07	.06½	.06¾	.06½	.07
64-66 450 end point	.06½	.07	.06½	.06¾	.06½	.07
OKLAHOMA (Group 3)—						
60-62 450 end point	.06¼	.06¾	.06¼	.06¾	.06¼	.06¾
64-68 450 end point	.06½	.07	.06½	.07	.06½	.07
68-70 430-435 end point	.06¾	.07¼	.06¾	.07¼	.06¾	.07¼
NORTH TEXAS—						
58-62 440 end point	.06¼	.06½	.06¼	.06½	.06¼	.06½
58-60 450 end point	.06¼	.06½	.06¼	.06½	.06¼	.06½
PENNSYLVANIA—						
*60-62	.11½		.11½		.11½	
*64-66	.11½		.11½		.11½	
*66-68	.11½		.11½		.11½	
*68-70	.11½		.11½		.11½	

*At Sistersville, W. Va.

BURNING OIL

CHICAGO DIST. (Based on Group 3)—	Oct. 16		Oct. 9		Oct. 2	
41-43 water white Kerosene	.04	.04½	.03⅞	.04½	.04	.04½
42-44 water white Kerosene	.04	.04¼	.04	.04¼	.04¼	.04½
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.03⅞	.04⅛	.03⅞	.04⅛	.03⅞	.04⅛
42-43 water white Kerosene	.04	.04¼	.04	.04¼	.04	.04¼
44-46 Kerosene Distillate	.05	.05¼	.05	.05¼	.05	.05¼
45-47 Kerosene Distillate (500 end point)	.05½	.06	.05½	.06	.05½	.06
46-48 Kerosene Distillate (480 end point)	.06	.06½	.06	.06½	.06	.06½
KANSAS—						
41-43 water white Kerosene	.04½	.04¾	.04½	.04¾	.04½	.04¾
NORTH TEXAS—						
41-43 water white Kerosene	.03¾	.04	.03¾	.04	.03¾	.04
41-43 prime white Kerosene	.03½	.05⅝	.03½	.03⅝	.03½	.03⅝
40-42 prime white Distillate	.03¼	.03½	.03¼	.03½	.03¼	.03½
NORTH LOUISIANA—						
41-43 prime white Kerosene	.03⅞	.04	.03¾	.04	.03¾	.04
42-43 water white Kerosene	.04	.04¼	.04	.04¼	.04	.04¼
ROCKY MOUNTAIN STATES—						
40-42 prime white Kerosene	.06¾		.06¾		.06¾	
PENNSYLVANIA—						
43 Kerosene prime white	.07		.06¾		.06½	
45 Kerosene water white	.07¼	.07½	.07¼		.07	
46 Kerosene water white	.07¾	.08	.07¾		.07½	
47 Kerosene water white	.08½		.08¼		.08	
36 Miners' Neutral	.07		.07		.07	

FUEL OILS

CHICAGO DIST. (Based on Group 3)—	Oct. 16		Oct. 9		Oct. 2	
24-26 Fuel Oil (sellers' cars, Group 3)	.80	.85	.80	.90	.85	.90
22-24 (El Dorado)	.70	.75	.75	.85	.80	.85
18-20 (Smackover)	.62½	.67½	.65	.75	.70	.80
32-36 Gas Oil	.02¼	.02½	.02⅜	.02½	.02⅜	.02½
38-40 Straw distillate	.03	.03½	.03¼	.03½	.02⅞	.03⅛
KANSAS—						
24-26 Fuel Oil	1.00	1.10	1.00	1.10	1.00	1.10
32-36 Gas Oil	.02¾	.03	.02¾	.03	.02¼	.02⅜
38-40 Distillate	.03½	.03¾	.03½	.03¾	.03½	.03⅜
OKLAHOMA (Group 3)—						
24-26 Fuel Oil (buyers' cars)	.75	.80	.77½	.82½	.77½	.82½
24-26 Fuel Oil (sellers' cars)	.80	.85	.80	.85	.82½	.87½
28-30 Fuel Oil (sellers' cars)	.90	.95	.90	.95	.90	.95
32-36 Gas Oil	.02⅜	.02½	.02⅜	.02½	.02¼	.02½
38-40 Straw Distillate	.03	.03¼	.03	.03¼	.03¼	.03½
NORTH TEXAS—						
24-26 Fuel Oil	.65	.70	.70	.75	.70	.75
26-30 Fuel Oil	.70	.75	.75	.80	.75	.80
32-36 Gas Oil	.02¼	.02⅜	.02¼	.02⅜	.02¼	.02⅜
36-38 Gas Oil	.02½	.02¾	.02½	.02¾	.02½	.02¾
38-40 Straw Distillate	.02⅞	.03⅛	.02⅞	.03⅛	.02⅞	.03⅛
NORTH LOUISIANA—						
20-22 Fuel Oil	.70		.75		.75	.80
32-36 Gas Oil	.02¾	.03	.02¾		.02¾	.03
38-40 light straw distillate	.03		.03		.03	
GULF COAST (South Texas)—						
Gas oil	.03	.03½	.03½	.03¾	.03½	.03¾
Fuel oil	1.10	1.15	1.15	1.30	1.20	1.30
PENNSYLVANIA—						
30-34 Fuel Oil	.05½		.05½		.05½	
36-40 Fuel Oil	.05⅞		.05⅞		.05⅞	
34 Neutral	.08		.08		.08	

ROAD OILS

OKLAHOMA (Group 3)—	Oct. 16		Oct. 9		Oct. 2	
50-60 Asphaltic content	.95	1.05	.95	1.05	.95	1.05
60-70 Asphaltic content	1.05	1.15	1.05	1.15	1.05	1.15
CHICAGO DIST. (Based on Group 3)—						
50-60 Asphaltic content (Group 3)	1.00		1.00	1.10	1.00	1.10

NEUTRAL OILS

OKLAHOMA (Group 3)—	Oct. 16		Oct. 9		Oct. 2	
Pale Neutrals:						
70-80 vis., 2½ color, 20-25 cold test	.04¼	.04½	.04¼	.04½	.04¼	.04½
100 vis., 2 color, 20-25 cold test	.06	.06½	.06	.06½	.06	.06½
100 vis., 3 color, 20-25 cold test	.05½	.06	.05½	.06	.05½	.06
150 vis., 3 color, 20-25 cold test	.11½	.12	.11½	.12	.11½	.12
150 vis., 4 color, 20-25 cold test	.11	.11½	.11	.11½	.11	.11½
180 vis., 4 color, 23-28 cold test	.13¼	.13¾	.13¼	.13¾	.13¼	.13¾
180 vis., 3 color, 23-28 cold test	.14	.14½	.14	.14½	.14	.14½
200 vis., 3 color, 23-28 cold test	.15	.15½	.15	.15½	.15	.15½
200 vis., 4 color, 23-28 cold test	.14¼	.14¾	.14¼	.14¾	.14¼	.14¾
220 vis., 3 color, 25-30 cold test	.16	.16½	.16	.16½	.16	.16½
220 vis., 4 color, 25-30 cold test	.15¼	.15¾	.15¼	.15¾	.15¼	.15¾
240 vis., 4 color, 25-30 cold test	.16¼	.16¾	.16¼	.16¾	.16¼	.16¾
280 vis., 3 color, 25-30 cold test	.19½	.20	.19½	.20	.19½	.20
280 vis., 4 color, 25-30 cold test	.18½	.19	.18½	.19	.18½	.19
30 vis., 3 color, 25-30 cold test	.20	.20½	.20	.20½	.20	.20½
Red Neutrals:						
180 vis., 5 color, 23-28 cold test	.12½	.13	.12½	.13	.12¼	.13
180 vis., 6 color, 23-28 cold test	.11¾	.12¼	.11¾	.12¼	.11¾	.12¼
200 vis., 5 color, 23-28 cold test	.13½	.14	.13½	.14	.13½	.14
200 vis., 6 color, 23-28 cold test	.12¾	.13¼	.12¾	.13¼	.12¾	.13¼
220 vis., 5 color, 25-30 cold test	.14½	.15	.14½	.15	.14½	.15
220 vis., 6 color, 25-30 cold test	.13¾	.14½	.13¾	.14½	.13¾	.14½
240 vis., 5 color, 25-30 cold test	.15½	.16	.15½	.16	.15½	.16
240 vis., 6 color, 25-30 cold test	.14¾	.15¼	.14¾	.15¼	.14¾	.15¼
280 vis., 5 color, 25-30 cold test	.17½	.18	.17½	.18	.17½	.18
280 vis., 6 color, 25-30 cold test	.16½	.17	.16½	.17	.16½	.17
300 vis., 5 color, 25-30 cold test	.16½	.17	.16½	.17	.16½	.17
150-160 vis., 1 color, 40-50 cold test	.06½	.07	.06½	.07	.06½	.07
190-200 dark green, 40-50 cold test	.05½	.06	.05½	.06	.05½	.06
600 steam refined	.16		.16		.16	
590-600 Bright Stock	.28		.28		.28	
600-610 Bright Stock	.33		.33		.33	
Waxes:						
124-126 White Crude Scale Wax	.02¾	.02⅞	.02¾	.02⅞	.02⅞	

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

PENNSYLVANIA—

	Oct. 16	Oct. 9	Oct. 2
150, 3 color	.21½	.21½	.22
180, 3 color	.24	.24	.24
200, 3 color	.26	.26	.26
220, 3 color	.29	.29	.29
600, steam refined	.10¾	.10¾	.10¾
635, steam refined	.12½	.12½	.11¾
650, steam refined	.13½	.13	.12½
600, Pennsylvania flash	.16	.16	.15½
630, Pennsylvania flash	.20½	.20	.20
*550, E filtered	.14	.14	.13¾
*600, E filtered	.16	.16	.15¾
600, E filtered	.13¾	.13¾	.13¾
600, D filtered	.20½	.20½	.20½
550, E filtered	.13½	.13½	.13¼
550, D filtered	.16	.16	.15½
Pennsylvania Bright Stock	.31½	.31½	.32
†122-124 White Crude Scale Wax	.03¼	.03	.03
†124-126 White Crude Scale Wax	.03⅜	.03⅛	.03⅛
300 Mineral Seal	.07¾	.07½	.07½

*At Warren, Penn. †At New York City.

GULF COAST (South Texas)—

Lubricating Stocks:						
Zero Black	.06	.07	.06	.07	.06	.07
No. 2 color, 100 vis., pale oil	.07½	.08½	.07	.08	.07	.08
No. 2½ color, 150 vis., pale oil	.09½	.11	.09½	.11	.09½	.11
No. 3 color, 200 vis., pale oil	.11	.12	.10	.12	.10	.12
No. 3½ color, 300 vis., pale oil	.14	.15½	.14	.15½	.14	.15½
No. 3½ color, 500 vis., pale oil	.16	.17	.16	.17	.16	.17
No. 3½ color, 750 vis., pale oil	.22½	.24½	.22½	.23½	.22½	.23½
No. 1½ color, 150 vis., pale, filtered	.20½	.21½	.20½	.21½	.20½	.21½
No. 2 color, 200 vis., pale, filtered	.23½	.25	.23½	.25	.23½	.25
No. 2½ color, 500 vis., pale, filtered	.31	.33	.31	.33	.31	.33
No. 2½ color, 750 vis., pale, filtered	.40	.41	.40	.41	.40	.41
No. 5 color, 200 vis., red oil	.10	.11	.09	.10½	.09	.10½
No. 5 color, 300 vis., red oil	.12	.13	.12	.13	.12	.13
No. 5 color, 500 vis., red oil	.14	.15	.14	.15	.14	.15
No. 5 color, 750 vis., red oil	.21	.23	.22	.23	.22	.23
No. 5, 1200 vis., red oil	.24	.26	.24	.26	.24	.26

NEW YORK DOMESTIC MARKET

Motor Gasoline:	Oct. 16	Oct. 9	Oct. 2
Greater New York, in steel barrels	.18½	.18½	.18½
New York State (outside Greater New York and New England, tank wagon	.18½	.18½	.18½
New Jersey, tank wagon	.16½	.18½	.18½
V.M.P. Naphtha, in steel barrels	.17½	.17½	.17½
Kerosene:			
Greater New York, tank wagon	.14	.14	.14
New York State (outside Greater New York and New England, tank wagon	.14	.14	.14
Gasoline in bulk, delivered at N. Y.	.10½	.10½	.10½
New Jersey, tank wagon	.13	.13	.13
Lubricating Oil (Industrial) at refinery, Bayonne, N. J.:			
Cylinder, extra light filtered, in barrels	.36½	.36½	.37½
Cylinder, light filtered, in barrels	.31½	.31½	.32½
Cylinder, Bright Stock	.44	.44	.44½
Cylinder, steam refined (600)	.21½	.21½	.22½
Black, in bulk	.09½	.09½	.08½
Bloomless, white, 30-31 gravity, 170 vis.	.43	.43	.41½
Bloomless, 885 specific gravity	.16½	.16½	.16½
Red Paraffin:			
170 viscosity	.18½	.18½	.19
212 viscosity	.20	.20	.21
265 viscosity	.22	.22	.23
295 viscosity	.25	.25	.26
Paraffin, 903 specific gravity	.22½	.22½	.24½
Lubr.cating Oil (motor), discount to dealers:			
Cylinder, in barrels	1.00	1.00	1.00
Steam tractors, in barrels	1.00	1.00	1.00
Transmission and differential, in barrels	.09½	.09½	.09½
Motor Grease, in barrels, pounds	.13	.13	.13
*Fuel Oil:			
Bunker Oil, 14 plus, delivered in barges, bbl.	1.45	1.45	1.45
Diesel Oil, at refinery, gallon	.03¾	.03¾	.04
Furnace oil, tank wagon, gallon	.10	.10	.10
Gas Oil, delivered in New York	.04¼	.04¼	.04¼
Wax, fully refined:			
120-122 a.m.p.	.03¾	.03¾	.03¼
125-127 a.m.p.	.03¾	.03¾	.03¾
130-132 a.m.p.	.04¼	.04¼	.04¼
135-137 a.m.p.	.05¼	.05¼	.05¼

*Lighterage, 6.5c a barrel extra.

NEW YORK EXPORT PRICES

	Oct. 16	Oct. 9	Oct. 2
Motor Gasoline, in cases, gallon	.25.15	.25.15	.25.65
Motor Gasoline, U. S. Navy, spec., gallon	.11.50	.11.5	.12
Naphtha, 60° F., 59-61 spec. grav	.12.50	.12.5	.13
Naphtha, 60° F., 63-66 spec. grav	.14.50	.14.5	.15
Naphtha, 60° F., 66-68 spec. grav	.16.0	.16.0	.16½
Kerosene:			
Standard white, in bulk, gallon	.06	.05½	.05½
Standard white, in barrels, gallon	.13	.12½	.12½
Standard white, in cases, gallon	.15.9	.15.4	.15.4
Water white, in bulk, gallon	.07	.06½	.06½
Water white, in barrels, gallon	.14	.13½	.13½
Water white, in cases, gallon	.16.9	.16.4	.16.4

CRUDE OIL PRICES

September 21.—The Ohio Oil Co. and the Mid-West Refining Co. made the following changes in Wyoming crude quotations: Grass Creek, Elk Basin, Big Muddy and Rock Creek crudes were reduced 35 cents per barrel. Lance Creek crude was reduced 50 cents and Mule Creek crude was reduced 20 cents per barrel. Salt Creek, Osage, Greybull, Torchlight and Hamilton Dome crudes were also reduced 35 cents per barrel.

October 8.—Humble Oil and Refining Co. announced a new schedule of prices for North and Central Texas crudes amounting to reductions in some gravities and advances in others. New prices are given under the North Central Texas quotations. Company takes 100 per cent runs under the new prices.

October 9.—Standard Oil Co. of California reduced California crudes of 22° gravity and above from 2 to 28 cents a barrel. The Texas Co. reduced North and Central crudes of 33° to 39.9° gravity, 20 cents and 40° gravity and above, 25 cents. Company agreed to take 100 per cent of the runs.

October 13.—Magnolia Petroleum Co. announced a new schedule for Texas crudes, meeting The Texas Co. schedule on grades above 33° gravity and putting into effect the prices paid for Healdton, Okla., grade oil on oils below 33° gravity.

October 17.—Gulf Pipe Line Co. announced price of 75 cents on Gulf Coast heavy crudes, except Blue Ridge and Pierce Junction, where the new price was 65 cents.

Oklahoma and Kansas

Below 33°	$ .90
33° to 39.9°	1.30
40° and above	1.75
(Magnolia Petroleum Co., and The Texas Co., Healdton grade)	
Below 28°	$ .50
28° to 30.9°	.70
31° to 32.9°	.90

Arkansas and North Louisiana

Caddo, 38° and above	$1.25
35° to 37.9°	1.15
32° to 34.9°	1.10
Below 32°	.75
Homer, 35° and above	1.25
33° to 34.9°	1.15
31° to 32.9°	1.10
Below 31°	.75
Haynesville, 33° and above	1.20
Below 33°	1.10
El Dorado, 33° and above	1.25
Below 33°	1.10
Bull Bayou, 38° and above	1 15
35° to 37.9°	1.05
32° to 34.9°	1.00
De Soto	1.25
Crichton	.90
Bellevue	.75
Smackover, 26° and above	.75
25° to 25.9°	.60
24° to 24.9°	.50
Below 24°	.40

Wyoming and Montana

Rock Creek, (Wyo.)	$ .90
Salt Creek	.90
Big Muddy	.75
Mule Creek	.75
Grass Creek	1.35
Elk Basin	1.35
Lance Creek	1.20
Osage	1 35
Cat Creek (Mont.)	1.70
Sunburst (Mont.)	.70
Greybull and Torchlight	1.35
Hamilton Dome	.90

Lander and Lost Soldier based on contracts covering entire production of fields.

North Texas and North Central Texas

Corsicana light	1.00
Corsicana heavy	.50
Mexia	1.00
Currie	1.00
Powell	1.00
Moran, Burkburnett, Electra, Archer County, Stephens County, Strawn. Ranger, Desdemona, Pioneer and Young County.	
Below 33°	$ .90
33° to 39.9°	1.30
40° and above	1.75
The Texas Co. prices:	
33° to 39.9°	1.10
40° and above	1.25
Humble Oil and Refining Co. prices:	
Below 30°	.90
30° to 32.9°	1.10
33° to 35.9°	1.20
36° to 38.8°	1.35
39° and above	1.50
Magnolia Petroleum Co. prices:	
Below 28°	.50
28° to 30.9°	.70
31° to 32.9°	.90
33° to 39.9°	1.10
40° and above	1.25

Gulf Coast

Gulf Pipe Line Co., Goose Creek, Hull, Sour Lake, Batson, Saratoga, Spindletop, Orange, Vinton, Edgerly, Jennings	$ .75
Grade "B," Pierce Junction, Blue Ridge	.65
The Sun Pipe Line Co., Grade "A," Humble, Hull, Goose Creek, Orange, Spindletop, Saratoga, Batson, Dayton, Sour Lake	1.00
Humble Pipe Line Co., Goose Creek, Hull, West Columbia, Orange	1.00
Grade "B," Pierce Junction	.90
Texas Pipe Line Co., Humble, West Columbia, Orange, Sour Lake, Saratoga, Batson, Vinton, Jennings, Markham	1.00
Sinclair Pipe Line Co., West Columbia, Damon Mound	1.00

California

14° to 19.9°	$ .60
20° to 20.9°	.61
21° to 21.9°	.62
22° to 22.9°	.63
23° to 23.9°	.64
24° to 24.9°	.65
25° to 25.9°	.66
26° to 26.9°	.67
27° to 27.9°	.68
28° to 28.9°	.69
29° to 29.9°	.70
30° to 30.9°	.71
31° to 31.9°	.72
32° to 32.9°	.73
33° to 33.9°	.74
34° to 34.9°	.75
35° gravity and above	.76

Eastern States

Penna Grade Oil in New York Transit Lines	$2.75
Bradford District Oil in National Transit Lines	$2.75
Penna Grade O.l in National Transit Lines	2.50
Penna Grade Oil in South West Pa. Pipe Lines	2.50
Penna Grade Oil in Eureka Pipe Line Lines	2.50
Penna Grade Oil in Buckeye Pipe Line Lines	2.50
Corning Grade Oil in Buckeye Pipe Line Lines	1.45
Cabell Grade Oil in Eureka Pipe Line Lines	1.35
*Somerset Medium Oil in Cumberland Pipe Line Lines	1.25
*Somerset Light Oil in Cumberland Pipe Line Lines	1.40
Ragland Grade Oil in Cumberland Pipe Line Lines	.75
Lima	1.68
Wooster	1.50
Illinois	1.47
Indiana	1.48
Princeton	1.47
Plymouth	.85
Waterloo	.95
†Petrolia, Canada	2.28
†Oil Springs, Canada	2.35

*Somerset oil commands 6 cents over the above posted price.

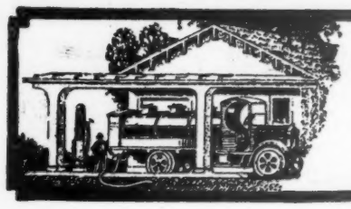
†Plus Government bounty of 52½c.

Mexican Crude

*Tuxpam (f.o b. Mexican ports)	$1.00
†Panuco (f.o.b. Mexican ports)	.55
Tuxpam (New York)	1.55
Panuco (New York)	.97

*Plus 30.34c tax. †Plus 16.93c tax. Prices based on contracts.

KANSAS—									Waxes:						
41-43 water white Kerosene	.04½	.04¾	.04½	.04¾	.04½	.04¾			124-126 White Crude Scale Wax	.02¾	.02⅞	.02¾	.02⅞	.02⅞	



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States, as furnished by the larger marketing concerns, Oct. 16

STANDARD OIL CO. (INDIANA)

Main Service Station Price

	Gasoline Tank wagon	Incids tax	Service of station	Kero. Tank wagon
Chicago district	13.4	..	15.4	10.

Tank wagon prices on Jan. 25, 1921, down 2c on g., 3c on k., Feb. 1, both down 2c; April 27 both down 3c; July 25 g. down 2c; Oct. 25, g. up 1c; Oct. 23, k. up 1c; Nov. 9, g. up 1¼c; k. 1c; April 10, 1922, g. up 1½c; May 8, g. up 1c; June 27, both up 1c; July 19, g. down 2c; k. down 1c; Oct. 10, g. down 2c; Oct. 31, g. down 1c; Feb. 5, 1923, g. up 1c; Feb. 20, g. up 1c; Aug. 14, g. down 6.6c; Oct. 4, k. down 1½c.

Decatur, Ill.	14.2	..	16.2	10.5
Joliet	13.4	..	15.4	10.7
Peoria	14.2	..	16.2	10.5
Quincy	14.0	..	16.0	10.3
Davenport, Ia.	14.5	..	16.5	10.9
Des Moines	12.5	..	14.5	10.9
Keokuk	14.5	..	16.5	10.9
Sioux City	14.0	..	16.0	10.5
Duluth, Minn.	15.2	..	17.2	11.6
Minneapolis	12.9	..	14.9	11.6
La Crosse, Wis.	15.2	..	17.2	11.4
Milwaukee	14.0	..	16.0	10.2
Madison	14.3	..	16.3	10.5
Detroit, Mich.	12.8	..	14.8	10.5
Grand Rapids	14.7	..	16.7	11.1
Saginaw	14.9	..	16.9	11.3
Evansville, Ind.	16.0	2.0	18.0	10.5
Fort Wayne	16.4	2.0	18.4	10.9
Indianapolis	16.2	2.0	18.2	10.7
South Bend	16.4	2.0	18.4	10.9
Fargo, N. D.	16.6	1.0	18.6	13.6
Huron, S. D.	16.0	2.0	16.0	12.1
Sioux Falls	15.5	2.0	15.5	11.6
*Kansas City	11.9	1.0	13.9	9.3
Springfield	13.8	..	15.8	10.2
St. Louis	12.1	..	14.4	10.0
*St. Joseph	14.3	.5	16.3	10.2
Wichita, Kans.	13.8	..	15.8	9.8

*City tax. Effective today.

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

Atlantic Refining Co.

	Gasoline Tank wagon	Incids tax	Service of station	Kero. Tank wagon
Pittsburgh, Pa.	16.0	*	21.0	14.0
Philadelphia	16.0	*	21.0	14.0
Dover, Del.	17.0	1.0	20.0	14.0
Wilmington	17.0	1.0	20.0	14.0
Providence, R. I.	18.5	..	21.0	14.0
Springfield	18.5	..	21.0	14.0
Worcester	18.5	..	21.0	14.0
Hartford, Conn.	18.5	*	22.0	14.0
New Haven	18.5	*	22.0	14.0
Boston	18.5	..	21.0	14.0

*Pennsylvania tax of 2 cents and Connecticut tax of 1 cent are collected by the dealer and paid by him direct to the State.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline Tank wagon	Incids tax	Service of station	Kero. Tank wagon
Atlanta, Ga.	18.0	3.0	20.0	15.0
Augusta	18.0	3.0	20.0	14.0
Macon	18.0	3.0	20.0	14.5
Savannah	16.0	3.0	18.0	13.0
Birmingham, Ala.	16.0	2.0	18.0	14.5
Mobile	15.0	2.0	17.0	13.5
Montgomery	16.0	2.0	18.0	15.0
Clarksdale, Miss.	14.0	1.0	16.0	13.0
Jackson	13.0	1.0	15.0	11.0
Natchez	13.5	1.0	15.5	12.5
Vicksburg	13.5	1.0	15.5	12.5
Jacksonville, Fla	16.0	3.0	18.0	13.0
Miami	18.0	3.0	20.0	14.5
Pensacola	16.0	3.0	18.0	13.5
Tampa	16.0	3.0	18.0	13.0
Covington, Ky.	15.0	1.0	17.0	13.0
Lexington	15.0	1.0	17.0	14.0
Louisville	14.0	1.0	16.0	13.0

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline Tank wagon	Incids tax	Service of station	Kero. Tank wagon
Denver, Colo.	15.0	2.0	17.0	13.5
Glenwood Spgs.	21.0	2.0	....	16.5
Pueblo	17.0	2.0	19.0	12.5
Basin, Wyo.	16.0	1.0	....	13.0
Casper	14.0	1.0	16.0	11.0
Cheyenne	16.5	1.0	17.5	13.0
Cody	17.0	1.0	....	14.0
Lander	16.0	1.0	....	13.0
Billings, Mont.	19.5	2.0	21.5	14.5
Butte	21.0	2.0	23.0	15.0
Great Falls	21.0	2.0	23.0	16.0
Helena	21.0	2.0	23.0	16.0
Miles City	20.5	2.0	22.5	15.5
Boise, Idaho	21.0	3.0	22.0	18.0
Salt Lake, Utah	21.0	2.5	37.0	15.5
Ogden	21.0	2.5	23.0	15.5
Albuquerque, N. M.	18.0	1.0	20.0	15.5

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline Tank wagon	Incids tax	Service of station	Kero. Tank wagon
Newark, N. J.	18.5	..	21.5	12.0
Atlantic City	18.5	..	21.5	12.0
Annapolis, Md.	19.0	1.0	22.0	13.0
Baltimore	19.0	1.0	22.0	12.0
Cumberland	19.0	1.0	22.0	14.0
Washington	18.0	..	21.0	12.5
Norfolk, Va.	20.0	3.0	23.0	12.0
Petersburg	21.0	3.0	23.0	13.5
Danville	21.0	3.0	23.0	14.0
Richmond	21.0	3.0	23.0	12.5
Roanoke	21.0	3.0	23.0	14.0
Keyser, W. Va.	20.0	2.0	23.0	14.0
Charleston	20.0	2.0	23.0	12.5
Parkersburg	19.0	2.0	21.0	11.0
Wheeling	20.0	2.0	23.0	12.5
Charlotte, N. C.	21.0	3.0	23.0	13.5
Hickory	21.5	3.0	23.5	14.0
Mt. Airy	21.0	3.0	23.0	13.5
Salisbury	21.5	3.0	23.5	14.0
Charleston	19.0	2.0	22.0	11.5
Columbia	21.0	3.0	23.0	13.5

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline Tank wagon	Incids tax	Service of station	Kero. Tank wagon
Dallas, Tex.	7.0	1.0	10.0	10.0
Fort Worth	7.0	1.0	9.0	10.0
Houston	14.0	1.0	18.0	11.0
San Antonio	7.0	1.0	10.0	11.0
El Paso	14.0	1.0	17.0	12.0
Muskogee, Okla.	12.0	1.0	16.0	9.0
Oklahoma City	10.0	1.0	14.0	9.0
Tulsa	11.0	1.0	14.0	9.0
Ft. Smith, Ark.	15.5	3.0	18.5	11.0
Little Rock	17.0	3.0	20.0	12.0
Texarkana	17.0	3.0	20.0	11.0

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline Tank wagon	Incids tax	Service of station	Kero. Tank wagon
New Orleans, La	13.5	1.0	16.5	11.0
Alexandria	14.5	1.0	17.5	12.0
Baton Rouge	13.0	1.0	16.0	10.5
Lake Charles	14.5	1.0	17.5	12.0
Shreveport	14.5	1.0	17.5	12.0
Memphis, Tenn.	16.0	2.0	19.0	13.0
Chattanooga	16.5	2.0	19.5	13.5
Knoxville	17.5	2.0	20.5	14.0
Nashville	16.5	2.0	19.5	13.0
Bristol	18.0	3.0	21.0	14.5
Little Rock, Ark.	17.5	3.0	20.5	12.0
West Helena	17.5	3.0	20.5	12.0

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline Tank wagon	Incids tax	Service of station	Kero. Tank wagon
Albany, N. Y.	19.0	..	21.0	13.0
*New York	18.5	..	22.0	14.0
Buffalo	16.0	..	20.0	14.0
Rochester	17.5	..	20.0	13.0
Syracuse	17.0	..	19.0	12.0
Boston, Mass.	18.5	..	21.0	12.0
Providence, R. I.	18.5	..	22.0	14.0
Augusta, Me.	18.5	1.0	23.0	14.0
Manchester	18.5	1.0	23.0	14.0
Burlington, Vt.	18.5	1.0	23.0	14.0

*Price in steel barrels.

OHIO

Standard Oil Co. (Ohio)

	Gasoline Tank wagon	Incids tax	Service of station	Kero. Tank wagon
All Ohio points	17.0	..	19.0	13.0

PACIFIC COAST DISTRICT

Standard Oil Co. (California)

	Gasoline Tank wagon	Incids tax	Service of station	Kero. Tank wagon
San Francisco	16.0	2.0	18.0	15.5
Los Angeles	15.0	2.0	17.0	15.5
Fresno	14.5	2.0	17.5	17.5
Reno, Nev.	17.5	3.0	20.5	19.0
Portland, Ore.	16.0	3.0	19.0	16.5
Seattle, Wash.	14.0	1.0	17.0	16.5
Tacoma	14.0	1.0	17.0	16.5
Phoenix, Ariz.	18.5	3.0	21.5	21.5
Honolulu, H.	13.5	..	16.5	17.5
Juneau, Alaska	14.5	..	17.5	18.0

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline Tank wagon	Incids tax	Service of station	Kero. Tank wagon
Omaha	14.25	..	16.25	11.75
Crawford	15.0	..	....	13.0
McCook	15.75	..	17.75	13.75
Norfolk	14.75	..	16.75	12.5
North Platte	15.75	..	17.75	13.75
Scotts Bluff	15.25	..	17.25	13.0

TANK WAGON CHANGES

Effective, Magnolia Petroleum Co. reduced gasoline service station price 1 cent at Fort Worth, Texas.

Effective, Magnolia Petroleum Co. reduced gasoline 3 cents at San Antonio, Texas.

Effective October 12, the Continental Oil Co. reduced the price of gasoline 2 cents per gallon at Denver, Colo.

Effective October 15, the Continental Oil Co. reduced the price of gasoline at points in Utah 1 cent per gallon. Effective same date the Continental Oil Co. reduced the price of kerosene 1 cent per gallon in practically all points in Montana, Idaho, Utah, Colorado and Wyoming.

Effective October 18 Atlantic Refining Co. reduced gasoline tank wagon and service stations prices 2 cents in Pennsylvania and Delaware.

Effective October 17, the Standard Oil Co. of Indiana reduced gasoline tank wagon and service station price 1 cent in Kansas City.

Effective October 17, Standard Oil Co. of Kentucky reduced the gasoline tank wagon and service station prices 2 cents in entire territory.

CONTINUED STRENGTH IS COASTAL FEATURE

HOUSTON, Texas, Oct. 15.—October has brought the best movement the year has shown for Zero Cold Test oils. Coastal refiners report sufficient orders already booked to take all runs for the month, with inquiries coming daily. As stocks are extremely low, this leaves plants of the district shipping as they finish lubricants.

Quotations this week show a few increases; in most instances these are on the low column and have served to decrease the margin between high and low figures. Every indication is in the direction of continued strength and it is the common opinion that the lighter oils will move at still higher prices this month.

Sales managers are trading among themselves in an effort to make prompt shipments. Many such deals are made without chance for profit, the only consideration being to take care of the needs of customers. It is not uncommon for sales managers to buy at a loss rather than delay shipments.

Although there is a keen demand with little finished oils in storage, the situation is not such that it can be termed a shortage. Plants are running well up to capacity. Crude oil is plentiful at the market price, $1 a barrel.

With the prices of lubricants advanced and crude oil at its lowest level of the year and no premiums being paid, Coastal refiners are in the midst of a period of profitable operation. Some refiners are filling all available crude storage.

Contrary to the season, both fuel oil and gas oil are week. Price reductions are shown for both this week. As yet there has been no local nor outside pick-up in the demand for fuel oil. Gas oil is now moving and several cargoes will clear from the Houston port this month. But the amount of this in storage from the lull of the summer is so great that it is in a weak stage. The low figure on gas oil is 3 cents. Small quantities of this can be bought for even less.

Fuel oil is available in plentiful quantities at $1.15 a barrel, with some selling 5 cents lower.

MARKET NOT SO GOOD IN NORTHWESTERN PA.

OIL CITY, Pa., Oct. 13.—The Northwestern Pennsylvania refinery market does not look so good at the present time as it did last week. Prices are holding firm and in the case of wax have been advanced. But the demand has slackened and the number of inquiries is also on the decrease.

Gasoline has shown a decidedly weaker position during the week. The weather recently has been cold, greatly reducing the amount of evening motoring and the drop in consumption is now being felt in demands upon the refiners.

Kerosene is about the same. The price has not fallen off and there has been but a very slight drop in the demand.

Cylinder stocks were the bright feature of the week. They are much stronger and the demand was very good. Neutrals have become very slow.

Wax is in good demand with higher prices. The demand for fuel oil has slackened up considerably.

GEORGIA GASOLINE TAX IS MILLION IN YEAR

ATLANTA, Ga., Oct. 15.—For the fiscal year ending October 1, 1923, the State of Georgia has collected $907,444.44 from the 1-cent tax on gasoline, and this total is expected to be increased by approximately $35,000 when reports from all oil companies within the State are in, according to an announcement made by W. D. Harrison, chief clerk in the comptroller general's office.

The total for the three months ending October 1 was greater than that of any quarter since the tax was imposed, the total now standing at $264,113.78, with about 20 companies yet to report and with the additional $35,000 revenue expected, according to Mr. Harrison.

The total by quarters follows:

Last quarter, 1922, $203,482.74; first quarter since the tax was imposed, the ter, 1923, $243,998.42; third quarter 1923, $264,113.78 (incomplete).

On October 1 the State added an additional tax of 2 cents on gasoline. The Standard Oil Co. of Kentucky, on the same date, raised gasoline in the State of Georgia from 21 to 23 cents.

IMPOSITION ON OIL INDUSTRY

"The gasoline tax is of no profit to the oil industry," says the Standard Oil Bulletin. "On the contrary, it is a burden. It is the seller of gasoline who does practically all of the work. The State furnishes certain forms and provides rules and regulations. The 'vendor' does the collecting of the tax, handles the receipts, requiring not a little bookkeeping and accounting, and makes return to proper state authorities. There is no profit to the seller of gasoline in these taxes. On the contrary, in most cases, the actual expense of the thankless task of tax collection is quite material."

MONTANA GASOLINE TAX

The State tax on gasoline in Montana for the quarter ended June 30, totaled $112,198. This compares with $58,782 for the first quarter, 1923. The rate is 2 cents a gallon. The revenue is divided as follows: Twenty per cent to State Highway Commission, 40 per cent to State general fund and 40 per cent to be divided equally among counties of State. Receipts going directly to counties may be used only for maintenance of highways in said counties.

W. VA. CITY TO SELL GASOLINE

Mayor William Wertz of Charleston, West Virginia, has secured option on two sites to be used by the city as filling stations, in an effort to force a reduction in gasoline prices; 25 cars of gasoline have been ordered and will be retailed at cost plus 1-cent a gallon profit to cover salaries.

PURE OIL

SERVICE ADVANTAGES to USERS both LARGE and SMALL

Refineries

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Minneapolis, Minn.
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Ardmore, Okla.
Cabin Creek Junction, W. Va.

1. **Uniform Quality.**
   Pure Oil products are of constant high grade, and result in complete consumer satisfaction.
2. **Complete Facilities for Special Orders.**
   Exacting orders with particular specifications can be promptly and advantageously filled.
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   Orders from barrel lots to train load shipments receive equal attention.
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   Each large consuming area is promptly served from one of the seven Pure Oil refineries. Frequent savings in freight rates result.
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   You have a steadily functioning organization to rely on—one that produces, refines and transports its own products.

Wire or write today.

The PURE OIL Co.

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NEW YORK, N. Y.
PITTSBURGH, PA.
TULSA, OKLA.
PHILADELPHIA, PA.
CHARLESTON, W. VA.
MINNEAPOLIS, MINN.
SEATTLE, WASH.

Industry to Benefit by Big Oil Show

Oil Men and Exhibitors Unanimous in Decision Exposition and Congress Should be Held in Tulsa Annually.

By Andrew M. Rowley

While the first International Petroleum Exposition and Congress is a thing of the past insofar as the exhibits, speeches and different conventions are concerned, the effect of this greatest of all gatherings of men interested in every angle of the petroleum industry is only beginning to be felt. It will de difficult to measure definitely the direct results of the bringing together of thousands of oil men from all parts of the United States and delegations from abroad, and of the assembling for close inspection of probably the most elaborate and comprehensive exhibit of oil field equipment and supplies used in the petroleum industry. These results will be felt far into the future, directly and indirectly by those who participated in the exposition and congress and those who were fortunate enough to be able to visit Tulsa during the past week when the first affair of its kind ever held anywhere was the mecca which attracted men prominently active in the oil business from the Atlantic to the Pacific in addition to many persons in high positions abroad.

An outstanding feature of the entire exposition and congress was the gratified surprise on the part of the visitors and exhibitors themselves at the immensity and comprehensiveness of the affair. A feeling upon the part of some that the first exposition and congress would be more or less of an experiment and that the real affair, molded on the experience of this year, would be held probably in 1924, melted when the gates were opened on the first day and turned to amazement as the exposition grounds were traversed.

Element of Personal Contact

Practically every feature of the petroleum industry was represented. The supplies and equipment used in the exhibits cost approximately $2,500,000. The steel construction used in the booths, roofing and buildings gave an air of permanence and beauty which coincided with the arrangement of the machinery, equipment and supplies. The actual operation and demonstration of the machinery and equipment carried the visitors into the very heart of the oil fields while three or four wells actually drilling with the most modern standard rotary and cable tool equipment added the touch of reality and practicability which gave those from non-oil producing sections an insight into the oil business many of them probably never could have obtained otherwise.

The elements of personal contact and actual demonstration attained during the week cannot fail to have a lasting and vast influence on the oil industry and those connected with it. It makes for better business, better understanding and gives a broader vision of the entire industry, something which cannot help but benefit every person connected with it directly or indirectly. Were the exposition and congress to accomplish only one thing and that to give the public in general even a slight insight into the vast development which has taken place in the petroleum industry and even a faint idea of the enormity of the industry and its vital necessity to the welfare and prosperity of the nation as a whole and every inhabitant—were this the only accomplishment, the exposition and congress would well have been worth all the time and expense expended upon it.

Benefit to Entire Industry

That this was accomplished to a great extent, there can be no doubt. At least the leaven was placed which will react to the benefit of the industry and aid in counteracting the effect of demagogues, propagandists and the type of politicians who appeal to the selfish and ignorant among their constituents. In addition to this, there was laid a foundation of mutual understanding and respect, a better knowledge and a more comprehensive view on the part of men buying oil field machinery, equipment and supplies and those engaged in the business of manufacturing and selling these things and also on the part of those interested more indirectly in the oil business but who are influential in centers where, although neither oil nor gas is produced, those engaged in the petroleum industry must look for support in educating the American public to the fact that probably the most important industry in modern civilization and the affairs of nations is the petroleum industry.

Plans for the exposition and congress to be held next year are already being made. The unanimous decision of the exhibitors, speakers at the congress, the visiting oil men and others who attended the affair last week is that Tulsa is the logical place for the holding of an international petroleum exposition and congress. This city is conceded to be the oil capital of the world and it is regarded as only fitting and proper that petroleum's greatest exhibit and gathering should be held here. The manner of handling the exposition and congress, the cooperation extended by the City of Tulsa, the fact that Tulsa is the headquarters of many of the large oil companies and supply and equipment concerns and that this city is the hub of the Mid-Continent territory all were factors in reaching the decision. The consensus of opinion of oil men and exhibitors might be expressed as was done by many: "Make it permanent and keep it in Tulsa."

Want it Kept Downtown

The management of the exposition and congress will be made international in scope in the directorate and board of governors, according to present plans. It is a non-profit making organization and every effort will be made to make it international in every sense of the word and to broaden and expand it until it will attract, when it is held each year, the conventions of the large organizations affiliated with the petroleum industry such as the American Petroleum Institute, the Natural Gas Association of America, the American Association of Petroleum Geologists and similar bodies.

A suggestion that the exposition and congress next year be held on a large plot of ground at the edge of Tulsa where there would be plenty of space for exhibits and demonstrations met with little but disfavor among the exhibitors and visitors at the "big show." The slogan of all seemed to be: "Keep it downtown where we can visit it as often as we wish." It appeared to be the unanimous opinion of all persons who participated in the congress and exposition that the affair should be held in the business district or as near it as possible. The exposition and congress last week was held in the downtown section of Tulsa within easy walking distance of the hotels with the result many visitors went to the show three times a day. It is said these persons probably would have visited it but once had it been held on the outskirts of the city where transportation would have been a problem.

There are numerous locations within the downtown area of Tulsa sufficiently large to accommodate twice as many or more exhibitors as were accommodated at the exposition last week. It is expected the directors of the International Petroleum Exposition and Congress will heed the wishes of the exhibitors and others who participated in the affair last week and decide to hold next year's exposition and congress in the downtown section where hotel and housing facilities will be even more adequate next year and where there are numerous large auditoriums suitable for the holding of conventions.

The views of the oil men who attended the exposition and congress seemed to be expressed in the statement of C. J. Wrightsman, president and treasurer of the Wrightsman Oil Co., who said:

"The exposition and congress was a wonderful contribution in a practical sense to the oil industry. It surprised all of us that there could be so much development in the business particularly in the perfection of machinery and technical equipment. It did much to eliminate in the public mind the supposition that the oil business was a kind of three-card monte game and that the stock grafter was a typical representative of the business. It proved to the world that the oil business is a real, vital industry."

One of the old-timers in the oil business, E. J. Erdman, president of the Jim Glenn Oil Co., of Oklahoma City, who claims a service of 50 years "under the walking beam" and who says he probably has drilled more wells in Oklahoma than any other man, said of the exposition and congress: "The International Petroleum Exposition and Congress is the grandest thing that ever was attempted. And it is only in its infancy, too."

Exhibitors at the first exposition and congress were unanimous in their expressions of enthusiasm regarding the first petroleum meeting and exhibit. Among the statements made to The Oil and Gas Journal by the exhibitors last week, as to what they thought of the First International Petroleum Exposition and Congress, were the following:

F. W. Freeborn Engineering Corp.—F. W. Freeborn, President; "Wonderful show. Should be repeated annually. Just another evidence that Tulsa conceives and does things."

American Radiator Co.—G. I. Morriss, Industrial Sales Engineer; "The best show we have ever exhibited in or attended."

Gilbert & Barker Manufacturing Co.—L. C. Ferguson; "Excellent."

The Texas Co.—R. G. Johnson, Special Agent; "By all means a permanent institution for Tulsa."

The Brown Instrument Co.—F. M. Poole, District Manager; "Good advertising from personal contact basis."

C. T. Tagliabue Manufacturing Co.—F. D. Harger, Department Manager; "This exposition is to petroleum industry what chemical show is to chemical industry."

Hill, Hubbell & Co.—E. A. Guenther, Salesman; "Fine—should benefit all concerned and be made permanent."

Empire Refineries, Inc.—Pierce, Junior Engineer; "Greatest thing I have ever seen."

Key Boiler Equipment Co.—Fred Key, Vice President; "Did not think Tulsa could do it."

Sun Oil Co.—A. M. Ballard, District Sales Manager; "Forerunner of greater show and of untold value to oil industry."

The Philip Carey Co.—L. E. Whitaker, Manager Oil Industry Dept., W. F. Catlett, Local Representative; "The exposition has been a decided success and beyond our anticipations."

Lee C. Moore & Co.—C. R. Krause, Western Manager; "Let's have it every year."

Eagle Picher Lead Co.—F. W. C. Bailey, Salesman; "Far beyond expectations and hope will be an annual event."

National Tube Co.—J. S. Smith; "The best first attempt in our experience."

Foamite Childs Corp.—H. P. Maginnis, Sales Agent for Oklahoma; "Some show. We are strong for a permanent place for 1924 exposition."

The Guiberson Corp.—A. B. Stilwell, District Manager; "Absolutely in favor of making it an annual affair."

The White Motor Co.—Pat E. O'Connor, Manager Petroleum Division; "Surpassed our expectations and should benefit the oil industry wonderfully."

Stover Manufacturing & Engineering Co.—T. H. Chandler, District Manager; "Its a damn good show."

Safety Pulling Machine Co.—O. A. Thompson, Manager; "Greater than they expected."

Kansas City Hay Press Co.—M. O. Swan, Sales Manager; "Absolutely satisfactory. The best educator the oil industry ever had."

United Lead Co.—Otto Mantius, Consulting Engineer; "Of tremendous value and interest to producers, refiners and general public; also the manufacturers themselves."

Hope Engineering & Supply Co.—D. W. McKay, Western Representative; "Great success; should be made permanent."

Deck Clamp Tank Co.—Charles B. Johnson, Sales Manager; "It is the greatest exhibition of oil equipment ever displayed. A wonderful success."

The Bovaird Supply Co.—F. Charles Shugart, Sales Department; "Same old story—Tulsa's way—over the top."

B. V. Emery & Co.—B. V. Emery, President; "Finest thing that has ever occurred for the oil industry. Directors should be congratulated for the efficient and cooperative manner in which they handled it."

R. F. Electrical Manufacturing Co.—John L. Baker, Representative; "Far beyond our expectations as an advertising medium."

Ohio Machine Tool Co.—L. H. Peters, Superintendent; "Fine; have more of them."

The W. T. Young Engine Co.—W. A. Scott, Sales and Service; "Very successful in every respect."

National Turnbuckle Derrick Co.—Frank M. Mahan; "Far beyond expectations."

American Schaeffer & Budenberg Corp.—O. F. Kluenter, Southwestern Manager; "Very fine; meet us again next year with a larger one."

Keystone Lubricating Co.—J. H. Elgin, Agent all oil fields; "The best ever exhibited. Cleveland, Chicago, Milwaukee and many other cities this year."

E. L. Whitney Co.—E. L. Whitney, President; "Believe it one of the best things ever held to show what is used in the Mid-Continent Field."

Reliance Steel Derrick Co.—A. H. Jameson, Chief Engineer; "Best medium to bring together and show what it takes to produce oil and gas and other by-products that has made Tulsa the capital of the oil industry."

Clear Vision Sales Co., Inc.—O. B. Lemmon, President; "Far above all expectations."

Pioneer Tank & Boiler Co.—O. B. Manross, Salesman; "Never anything better and next year never anything larger."

Transit Pump & Engine Co.—L. S. Allen; "Excellent in every respect."

Doherty Research Co. — Benjamin Greenfield, Research Engineer; "A great success and very instructive."

King Engineering Co.—U. S. King, Manager; "Wonderful—surprised they could get up such an exposition in length of time."

Morrison Bros.—J. C. Walker, Director of Sales; "Biggest and best exposition of its kind ever held."

The International Derrick & Equipment Co.—F. W. Mohler, Mid-Continent Sales Manager; "Greatest success in the history of industry."

Gaso Pump & Burner Co.—L. D. Armstrong, Sales Manager; "The greatest thing ever pulled—we're sure for it."

Universal Oil Products Co., "Dubbs Cracking Process."—W. R. Howard, Engineer; "The finest thing the oil industry has ever seen."

Worthington Pump Co.—J. Phillips; "No. 1."

Western Supply Co.—F. E. Crotto; "It's a Whale."

Kunkle Valve Co.—Robert V. Armitage, Salesman; "Let's do it all over again next year. (Greetings.)

Silumite Products Corp.—D. V. Ault, President; "Wonderful—fine. Will do more to boost trade and stabalize the business than a hundred trade wars."

Refinery Supply Co.—O. J. Best, Manager; "Value is inestimable."

Missouri Paint & Varnish Co.—Park D. Cole, District Manager; R. W. Swearinger, Resident Representative; "Well arranged and splendidly managed."

Walworth Manufacturing Co.—W. C. Goza, Assistant Manager Sales, Western Division; "Size and importance really not fully recognized by most people."

Dean E. Foster—John S. Blair, Engineer; "The finest thing possible for the petroleum industry and Tulsa."

American Steel Products, exhibited by **Tulsa Rig Reel & Manufacturing Co.**—Walker S. Estes, General Manager; "The best idea ever devised for a 'get together' between oil and supply men."

Clifford Manufacturing Co.—Victor Clifford, Chairman Board of Directors; "Greatest I ever saw and have taken them all in."

Pratt & Whitney Co.—C. L. Goodrich, Assistant Superintendent; "A-1."

Union Machine Co.—H. A. Durnell, Vice President and Manager; "Bully."

Champion Pneumatic Machinery Co.—H. H. Kouka; "Best I have ever seen."

Tidal Oil Co.—Al Rose; Superintendent of Production; "Fine."

Drake Museum—A. F. Bannon, Jr., Curator; "The best thing the oil country ever had."

Murray Tool & Supply Co.—F. W. De Luce, Salesman; C. M. Murray, Vice President; "A wonderful success and should be held every year."

Titusville Forge Co., Titusville, Pa.—G. A. Montgomery, Engine Oil Tool Dept. "Should be repeated at regular intervals. Great success."

Wilson Welder & Metals Co.—Harold C. Price, Oklahoma Representative; "Wonderful."

Graver Corp.—J. P. Graver, President; "Biggest thing ever held in any industry."

Norris Brothers, Inc.—D. E. Norris, President: "Words can't express; away beyond my expectations and hope it will repeat next year."

National Carbon Co., Inc.—F. E. Cory, Senior Salesman; "Very fine and should be an annual affair."

The Pattin Bros. Co.—A. S. Dunnington, Western Manager: "Great success in every way."

National Meter Co.—John E. Hosier, Assistant Manager Chicago Office; "Wonderful success. Feel well repaid for trouble and expense."

The Chas. N. Hough Manufacturing Co.—R. H. Lee, Sales Representative; "Wonderful success from every standpoint."

Blaisdell Machinery Co.—C. A. Spreter, Jr., Salesman; "Beyond expectations."

Standard Tank Car Co.—Frank T. Thompson, Southwestern Representative: "A decided success."

The S. M. Jones Co.—A. L. Meeks—"Best ever."

The American Metal Hose Co.—A. B. Friedman, Chicago Agent; "A huge success."

Henry Vogt Machine Co.—W. S. Cannon, Jr., Salesman; "Very good indeed a liberal education."

Victory Manufacturing Co.—E. E Matheson, Factory Engineer; O. Kelly, District Representative; "A great success. Should by all means be repeated."

Hughes Tool Co.—W. C. Morgan, Representative Oklahoma; "Most wonderful exhibit in history of the oil industry."

Wm. Powell Co.—Robert D. Allen, Sales Manager; "Best exhibition and most profitable ever attended."

A-1 Packer Corp.—L. M. Robinson, President; "Its beyond all expectations or expression."

Wichita Pump & Equipment Co.—J. C. Riggs, Manager; "Very good."

Chain Belt Co.—W. H. Brandt, Advertising Manager; "Great show, which will improve."

Bradford Rig & Reel Co.—F. M. Bohn, Salesman; "Tulsa Will."

Crouse Clear Vision Pump Co.—Leo Spalding, Manager; "The very best yet."

Petroleum Safety Appliance Co.—W. E. O'Meilia, Sales Manager: "For our business it was a grand success."

Oil Well Supply Co.—George A. Gage Special Machinery Salesman; "Fine great success, profitable; should be a yearly affair."

The Shaffer Specialty Co.—Harry F Hinish, E. J. Shaffer; "Cracker Jack."

National Supply Co.—R. W. Gordon Local Store Manager; "100% greater in every respect than we ever anticipated."

Hudson Wire & Iron Co.—W. B. and P. E. Hudson, Owners; "Greatest convention ever put on in Oildom."

Rand McNally & Co., Chicago—T. J. Hayden, Manager Traffic Department "A very good show for the producer."

Col. J. S. O'Connor

Colonel O'Connor is president of the American Foreign Oil Corp., chairman of Cia Mex de Petroleo El Sol; chairman of Cia Mex Oleoductos Publicos, and chairman of the Foreign Oil Corp. of Mexico. He came to Tulsa from Mexico to visit the first International Petroleum Exposition and Congress and was most enthusiastic regarding the success of the affair. He stated the Exposition and Congress exceeded his fondest expectations and would be far reaching in its benefits to the welfare of the entire oil industry generally.

Rock Island Plow Co.—H. O. Bird, Factory Representative; "Successful from every angle."

Beacon Visible Oil Pumps—C. Hobbs; "Very good. It has made much business for us."

Link-Belt Co.—Charles E. Markey, Salesman; "It has justified itself to become an annual event."

Dawes Electrical Sign & Manufacturing Co.—Q. P. Stahlman, Sales Manager; "Good for field man but not for filling station man."

Leader Iron Works—E. R. Kyler Assistant to President; "Greatest meeting ever pulled off. Expect to be back next year."

Blackmer Rotary Pump Co.—T. E. Goodwin, Salesman; "It is very good."

Landis Machine Co.—C. N. Kirkpatrick, Sales Manager; "Very fine."

Baird Supply Co.—Baird and Slingluff, President and Tulsa Manager; "Best ever. Suits us and has done us lots of good."

The Hill Clutch Co.—Hunter Morrison, Sales Manager; "My hat's off to Tulsa and the men who have handled this exhibition."

Superior Tube Co.—James A. Thomas, Hoyle, Jones, President; "Of colossal importance and benefit to the oil industry and indicative of the progress that is being made."

A. Y. McDonald Manufacturing Co.—C. L. Reeder, Manager; "Best ever."

Trimont Manufacturing Co., Trimo Tools—H. H. Wotherspoon, Special Representative; "A success."

The Bridgeport Machine Co.—J. A. Becker, Special Representative; "Quite favorable."

Producers & Refiners Corp.—R. W. McDowell, Assistant General Sales Manager; "I think the exposition is a far greater success than even the most optimistic anticipated."

The Parkersburg Rig & Reel Co.—D. F. McCarty, District Manager; "The greatest educational feature ever produced for the oil industry.

P. H. & F. M. Roots Co.—W. L. Sexton, Salesman; "Of equally great value to both the oil industry and the oil equipment supply men."

Jarecki Manufacturing Co.—J. W. Wells, Salesman; "Let's duplicate this next year."

Mosher & Co.—J. E. Talbert (Eddie); "We make every good show. But this beats 'em all."

R. E. Alexander—Charles E. Blain; "A wonderful show of tremendous benefit to oil man and manufacturer."

Williams Tool Corp.—Leslie H. Taylor, Sales Manager; "Excellent."

Joseph T. Ryerson & Son—Fred Clark, Manager Machine Tool Department; "Par excellent 110%."

Williamsport Wire Rope Co.—V. D. Tilden, Salesman; "Great."

Burns Tool Co.—H. G. Weaver; "Best thing of its kind ever held."

Lehmann Machine Co.—Paul Lehmann, Chairman of the Board; "Big success."

General Motors Truck Co.—J. M. Moncrief, State Manager; "Wonderful."

Twin Packer Oil & Gas Co.—J. A. Knox, Vice President; "Far exceeded expectations; a splendid example of civic pride and teamwork."

Bradford Motor Works—M. F. Brennan, Salesman; "A swell number."

The Calorizing Co.—E. W. Long, Manager Petroleum Division; "We want more space next year."

Templeton, Kenly & Co., Ltd.—H. B. Burlow, Manager Supply Sales; "A splendid show in every respect—valuable and productive for every branch of the industry."

The Oil Well Improvements Co.—E. (Gene) W. Wright, Secretary and Treasurer; "The best constructive exposition of petroleum industry ever assembled."

Crane Co.—E. Burke; M. W. Link, Sales Engineers; "Of greatest educational value to the oil industry and public."

Gas Engineering & Construction Co.—W. G. Cummings, president: "Much better than we expected. It's the cat's whiskers."

Clark Bros. Co.—C. P. Clark, Chief Engineer; "Great success for every one."

Milwaukee Tank Co.—E. A. Canavan, Manager Dallas Division; "It is 100%."

Mid-West Building Materials Co.—Charles L. Walling, Sales Manager Nokol Heating Co.; "Of greatest benefit to industry of anything that has happened."

Crowell Packer Co.—W. H. Lynch, Salesman; "It's a wonderful show—should be a yearly event at Tulsa."

Brown Welding & Machine Co.—C. H. Brown, Owner; "It is the most educational proposition ever shown."

Mine Safety Appliance Co.—E. H. Kellogg, Assistant Sales Manager; "Well pleased."

Highland Body Manufacturing Co.—Samuel Froome, Traveling Sales Manager; "A revelation to us Easterners; a real show."

A. P. Worthington—C. R. Irwin, Salesman; "The exposition has been a great success."

Westinghouse Electric & Manufacturing Co.—Charles S. Carter, Industrial Division; "Very fine."

Westcott & Greis—J. H. Satterwhite, Manager; "XX Good."

Gas-Tite Device Co.—T. H. Boyd, Superintendent; "A great success both to the oil man and manufacturer."

Harrisburg Pipe & Pipe Bending Co.—O. C. Thomas; "Very much pleased."

W-K-M-Co., Inc.—L. O. Koen, Vice President; "Greatest the industry has ever witnessed."

Columbian Steel Tank Co.—H. R. Leland, District Representative; "Revolutionary in scope, coordinating all branches of industry and educating public."

Southern Mill & Manufacturing Co.—J. P. Fransisco, Superintendent; "Very fine for every one."

The Swartwout Co.—H. T. Rieley, District Manager; "Fine. Will be here next year."

Magneto-Ignition Co.—O. R. Wohlauf, R. E. Day; "Great success—will have a larger exhibit next year."

Gustin Bacon Manufacturing Co.—N. M. Grove, Branch Manager; "The big

(Continued on Page 91)

Oklahoma Field Operations

By Ralph T. Baker

New work in all fields in Oklahoma continues on decline, even Wewoka showing little new development. Production at Wewoka dropped somewhat during the week, while Burbank again fell off. Tonkawa output increased slightly. New well at Wewoka started at 500 bbls. and settled to 200.

TULSA, Okla., Oct. 16.—Oklahoma operators took a week off to attend the International Petroleum Exposition and Congress at Tulsa with the result that drilling operations in the State created but little interest during the few days just past. New work again took a slump, falling from a total of 1,348 operations on September 29 to a total of 1,332 operations on October 6, a decrease of 16 operations. The lack of noteworthy completions was even more noticeable, with the new Wewoka Field showing signs of indolence.

On September 29, there were 64 locations, 213 rigs, 521 wells drilling and 550 wells shut down. On October 6 there were 61 locations, 205 rigs, 511 wells drilling and 555 wells shut down. The significance of this constantly increasing number of shut down wells and the accompanying decline in the wells actually drilling cannot pass without notice.

Experienced operators and heads of large companies still fail to see any cause for a revival of drilling operations and there is every prospect that the present effective shut down movement will continue during the winter. Recent adjustments and cuts in crude prices in other parts of the country are taken by many operators to indicate another cut in the price of Oklahoma oil before long. The Prairie Oil & Gas Co. has fought to maintain as high a price as possible to the benefit of Oklahoma producers, but the fight seemingly has been fruitless, due to the pressure of numerous outside circumstances which have gone beyond control.

Wewoka Output Lower

The daily average output of the new Wewoka Field fell from 18,891 bbls. to 15,416 bbls. during the week. Daily average production of the field for the week ended October 10 was as follows:

Company—	No. Wells	Output Bbls.
Independent O. & G. and Atlantic O. P.	1	312
Independent O. & G. and Sapulpa Ref.	1	280
Magnolia Pet. and Ramsey	1	180
Producers & Refners Corp.	4	6,746
Oklahoma Company	4	7,898
Total	11	15,416

Pipe lines have been handling less than half the oil produced in this field, the Prairie Pipe Line Co. taking 1,000 bbls. daily and the Producers & Refiners Corp. taking about 6,000 bbls. The remainder of the production has been shipped in tank cars and stored on the leases.

Completion at Wewoka

The most recent development in the Wewoka Field of Seminole County was the partial completion of the Producers & Refiners Corp.'s No. 1 Long, SE cor. SW NE, Section 32-8-8, which started off at the rate of 500 bbls. daily 10 feet in pay sand and later settled to an output of about 200 bbls. It will be drilled deeper. Top of sand was found at 3,148 feet. W. R. Ramsey is ready to drill out the plug in His No. 1 Wewoka Townsite, NE cor. SW, Section 19-8-8, total depth, 3,225 feet.

In Hughes County, the Gilcrease Oil Co.'s No. 1 Bruner, NW cor. NE, Section 20-9-9, was being connected to hastily constructed tankage, and appeared good for 150 to 200-bbl. well. It put 744 bbls. into tanks in four days.

Wildcats in Kay County will be depended upon to bring up the steadily declining production in that territory. So far few of them have showed anything more than the customary light indications from upper sands. In the meantime the Tonkawa Field has been held steady by feverish agitation and cleaning out of wells, deeper drilling and shooting with 20-quart shots.

The Alcorn Oil Co.'s No. 1 Riley, NW cor. Section 5-24-2w, is considered a failure, having found nothing in sand topped at 3,285 feet and drilled to 3,415 feet, still drilling in sand. The Alcorn Oil Co.'s No. 1 Chambers, SW cor. SE, Section 9-25-2w, was still drilling past casing and tools at 2,060 feet. The U. S. Cities Corp.'s No. 1 Simmons, NE cor. SE, Section 27-25-2w, was underreaming to 2,100 feet.

In the Blackwell district the Comar Oil Co. and the Gypsy Oil Co.'s No. 1 Garrett, NE cor. NW SE, Section 31-27-2e, was drilling at 1,870 feet after having a few small showings of oil and gas. The Alcorn Oil Co. and the Amerada Petroleum Corp.'s No. 1 Elledge, NE cor. SE, Section 32-27-1w, was drilling at 1,250 feet. The Alcorn Oil Co.'s No. 1 Hubbard, CSL NW, Section 12-26-2w, was drilling at 2,070 feet, with water showing in the hole. The Alcorn Oil Co.'s No. 1 Miles, NW cor. SE, Section 24-26-1w, was drilling at 965 feet.

The Marland Refining Co.'s No. 1 Nelson, SW cor. NE, Section 7-28-3w, Grant County, was drilling at 2,825 feet, with little to encourage further operations.

Otstot and others' No. 2 Skelton, NW cor. Section 15-27-1w, was ready to drill out cement, total depth 3,443 feet. Production was found at this depth, but cementing was made necessary by water trouble.

Tonkawa Production

Daily average production of the Tonkawa Field for the week ended October 10 was as follows:

Company—	No. Wells	Output Bbls.
Amerada Pet. Corp.	35	3,457
Blackwell O. & G. Co.	28	3,321
Carter Oil Co.	6	422
Champlin Ref. Co.	3	118
Comar Oil Co.	248	23,261
Cosden-Marland Cos.	13	531
Gypsy Oil Co.	77	9,174
Healdton O. & G. Co.	14	1 769
McCaskey & Wentz	41	6,378
McMan O. & G. Co.	2	47
Pennok Oil Co.	25	2,463
Phillips Pet. Co.	4	397
Prairie O. & G. Co.	10	1,219
Sinclair O. & G. Co.	1	18
Slick & Comar Oil Co.	31	3,563
Southwestern Pet. Co.	14	987
The Texas Co.	4	173
White Eagle O. & R. Co.	6	602
Total	562	57,890
Total Last Week	548	56,501
Difference	14	1,389

Daily average runs from the field during the week were as follows: Kay County Gas Co., 37,280 bbls.; Ozark Pipe Line Co., 11,742 bbls.; Gulf Pipe Line Co., 2,583 bbls.; Empire Pipe Line Co., 1,189 bbls.; Champlin Refining Co., 1,825 bbls.; Prairie Pipe Line Co., 1,219 bbls.; Producers & Refiners Corp., 554 bbls.; The Texas Co., 173 bbls.; Oklahoma Pipe Line Co., 422 bbls.; Bolene Refining Co., 492 bbls.; Golden Rule Refining Co., 368 bbls.

Daily average output of the Burbank Field for the week ended October 10, was as follows:

Company—	No. Wells	Output Bbls.
Carter Oil Co.	164	9,820
Comar Oil Co.	7	357
Cosden O. & G. Co.	68	2,078
Devonian Oil Co.	16	373
Gardner Pet. Co.	20	996
Gypsy Oil Co.	165	16,104
Kewanee O. & G. Co.	12	238
Laurel O. & G. Co.	16	594
Lorraine Pet. Co.	14	422
Midland Oil Co.	5	157
Mid-Kansas O. & G. Co.	20	4,549
Phillips-Delmar Cos.	1	1,926
Phillips Pet. Co.	12	2 108
Phillips-Skelly Cos.	141	8,848
Prairie O. & G. Co.	90	2,603
Producers & Refiners Corp.	28	988
Roxana Pet. Corp.	57	1,110
Simons & Moore	29	688
Sinclair Oil & Gas Co.	130	6,637
Skelly Oil Co.	4	1,956
Tidal Osage Oil Co.	41	1,253
Twin State Oil Co.	8	342
Total	1,048	64,147
Kay County—		
Geo. S. Boles	1	941
Carter Oil Co.	3	3,538
Comar Oil Co.	6	3,787
Cosden O. & G. Co.	2	2,324
Gypsy Oil Co.	4	980
Laurel O. & G. Co.	1	23
Phillips Pet. Co.	5	6,131
Danciger et al (Sapulpa Ref.)	5	1,213
Skelly-Phillips Cos.	12	2,213
Mid-Kansas O. & G. Co.	4	3,432
Pure Oil Co.	1	709
Roxana Pet. Corp.	1	819
Sinclair O. & G. Co.	1	223
Twin State Oil Co.	5	2,550
Total	51	28 883
Total Burbank	1,099	93,030
Last Week	1,0999	95,912
Difference	none	2,882

Daily averge pipe line runs were 52,948 bbls. as follows: Gulf Pipe Line Co. 4,434 bbls.; Cosden Pipe Line Co., 5,551 bbls.; Kay County Gas Co., 5,452 bbls.; Osage Pipe Line Co., 1,555 bbls.; Oklahoma Pipe Line Co., 15,128 bbls.; Prairie Pipe Line Co., 6581 bbls.; Sinclair Pipe Line Co., 3,617 bbls.; Moore Refining Co., 2,037 bbls.; Empire Pipe Line Co., 1,340 bbls.; Magnolia Petroleum Co., 3,091 bbls.; and Ozark Pipe Line Co., 4,162 bbls.

Storage amounted to 40,082 bbls. daily average and was distributed as follows: Standish Pipe Line Co., 8,420 bbls.; Gypsy Oil Co., 13,773 bbls.; Sinclair O. & G. Co., 4,179 bbls.; Mid-Kansas O. & G. Co., 6,761 bbls.; Danciger and others (Sapulpa Ref.) 813 bbls.; Twin State Oil Co., 1,195 bbls.; Boles, 691 bbls.; Delmar Oil Co., 1,926 bbls.; and Cosden O. & G. Co., 2,324 bbls.

Storage Exceeds 10,000,000 Bbls.

Oil storage in the Burbank Field has finally gone above the 10,000,00-bbl. mark, with the report of October 13, which shows a total of 10,023,207 bbls. stored in steel in that field. An increase in available room is also noted with 2,422,181 bbls. steel storage ready to be filled.

The gusher district around Hominy again promised to produce with the announcement by the Marland Refining Co. that they had shut in No. 2 Pettit, C SW SE, Section 20-23-8, which got the top of the pay formation at 2,610 feet and sprayed a large amount of oil over the surrounding country. The company is erecting tankage and making connections to handle the anticipated production. No estimate on the probable output has been made.

A diagonal offset to the recent good well by Glidden and Munn Bros., Inc., is expected to make a good producer when finished by the Riverland Oil Co. It is its No. 2, SE cor. NE NW, Section 28-20-12, which topped the pay formation at 2,015 feet, the same level at which the Munn Bros. well hit the pay. In the Riverland well the sand was drilled 3 feet and the oil rose 1,200 feet, after which operations were shut down. The second break in the Mississippi limestone may get additional exploitation in the Osage region as a result of these good showings.

The Watchorn O. & G. Co.'s No. 3 Miller, CSL NW SW, Section 33-23-3e, Pawnee County, picked up pay sand at 4,115 feet, which started off at the rate of 400 to 500 bbls. a day. Steen and others' No. 1 Canfield, NW cor. NE SE, Section 17-20-7, had an initial output of 250 bbls. daily from sand at 2,662-76 feet.

Northwest of Wewoka in Seminole County, Ossenbeck and others' No. 1 Davis, C SW NE, Section 10-8-7, drilled through what is thought to be Smith sand at 3,241-3,255 feet without encouraging results and is now drilling below 3,330 feet.

Activity at Blackwell

In Northern Kay County new production in Township 27-1w, was the cause of renewed drilling activity on the south and western edges of the old Blackwell Field. The Blackwell Oil & Gas Co. was rigging up No. 1 Crouch, SW cor. Section 10-27-1w. Otstot & Poling were spudding at 250 feet in No. 1, NW cor. NE SW, Section 15-27-1w. The Anolu Oil Co. had a rig for No. 2 Slocum, NE cor, Section 16-27-1w, Manahan, Otstot and others' No. 1 Slocum, NE cor. SW NE, same section, was making 530 bbls. from sand at 3,104-05 feet.

In the Tonkawa Field the Cosden Oil & Gas Co. and the Marland Refining Co.'s No. 8-A School Land, CEL NE SE, Section 33-25-1w, was good for 40 bbls. on the pump from sand at 2,536-47 feet. The Amerada Petroleum Corp's No. 4 Goltry, SW cor. NE, Section 34-25-1w, made 315 bbls. after a 20-quart shot in sand at 2,488-2,510 feet; No. 6 Goltry, CWL SW NE, same section, started at 69 bbls. from 2,163-70 feet, after being drilled deeper; and No. 7 Goltry, also an old well, NE cor. SW NE, same section, was finished as a 148-bbl. well after shooting sand from 2,115-25 feet with 15 quarts and sand at 2,147-77 feet with 10 quarts.

The Blackwell Oil & Gas Co.'s No. 3-B McDaniel, NW cor. SE NE, same section made 98 bbls. after a 10-quart shot at 2,160-77 feet. The Comar also worked over and drilled deeper in several wells. This company's No. 13-A Beverlin, SE cor. NW NW, Section 34-25-1w, made 97 bbls. at 2,483-2,539 feet; No. 21 Beverlin, C NW NW, same section, was finished for 163 bbls. at 2,484-2,522 feet, and No. 22 Beverline, CSL N half N half NW, same section, started at 203 bbls. from 2,460-2,529 feet.

McCaskey & Wentz's No. 38 McKee, C SE SW, same section, started as one of the best producers of the week. It made 723 bbls. from sand at 2,546-86 feet after a 20-quart shot. The same operators' No. 12 McKee, NE cor. SW, same section, also an old well, made 700 bbls. after a 20-quart shot in sand at 2,488-2,528 feet, while No. 17 McKee, CEL SE SW, same section, was good for 540 bbls. after a 20-quart shot at 2,519-49 feet; No. 21 McKee, CSL SE SW, same section, was finished for 865 bbls. after a 20-quart shot from 2,560-2,602 feet; No. 27 McKee, CNL NE NW, same section, was cleaned out and shot with 20 quarts from 2,502-32 feet, making 777 bbls. initial flow; No. 28 McKee, NE cor. SE SW, same section, an old well, started at 139 bbls. after a 20-quart shot from 2,217-35 feet; and No. 39 McKee, CWL NW SW, same section, was good for 236 bbls. after a 20-quart shot at 2,574-91 feet.

The Comar Oil Co.'s No. 7-A Endicott, CSL SW NE SE, Section 34-25-1w, made 209 bbls. from sand at 2,427-2,542 feet, while No. 8-B Endicott, CNL NW

(Continued on Page 108)

"Guibersons On All Strings"

Lease Foreman I. C. Eakin, of the Sinclair organization at Shidler, has GUIBERSON Tubing Catchers on all strings of tubing under his jurisdiction.

Tubing has parted on two of these wells, in recent years, but not a joint of tubing was lost or injured, as the catchers stopped the falls within a few inches.

Ask ANY up-to-date producer if he believes in using tubing catchers. "On all strings"—that is becoming the universal policy.

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peared good for 150 to 200-bbl. well. It put 744 bbls. into tanks in four days.

Refining Co., 492 bbls.; Golden Rule Refining Co., 368 bbls.

put has been made.

A diagonal offset to the recent good

feet, while No. 8-B Endicott, CNL NW

(Continued on Page 108)

California Field Operations

By L. P. Stockman

Cut in price of crude expected to further curtail unnecessary operations, especially in new fields. Production at Santa Fe Springs continues to decline. Completions there and at Long Beach very few in number. A number of wells, however, are nearing completion depth in both these fields.

LOS ANGELES, Calif., Oct. 13.—The cut in crude announced October 9 by the Standard Oil Co., came as a distinct surprise to many because it was thought there would be no more cuts in view of the fact that State production has been declining and will undoubtedly continue to do so for several months. The price schedule announced by the Standard Oil Co. has been met by all other marketing companies and it is believed that the new low prices in effect will help very materially in discouraging promiscuous drilling. This cut is not solely due to the present heavy production but, it is believed, is directed at future development work. It is aimed directly at operators in the Torrance and Compton fields with the view of restricting development work in these districts. Many experts have predicted that these two fields would not vitally affect the State's output of crude for some time, but apparently the Standard believes that immediate action must be taken. The Standard's recent cut confirms the impression that the immediate development of these two fields would be very disadvantageous and might prolong present unstable conditions in the industry.

For a long time many thought that Torrance was destined to be a comparatively small producer of low gravity oil but recent developments indicate its potentialities have been underestimated and that there is a possibility of another overproduction if Torrance and Compton are developed simultaneously. Even though future production at Compton and Torrance does not assume gigantic proportions it is bound to have some effect on conditions several months hence. If these two fields develop a substantial production just when the industry is recovering from conditions which have prevailed for the past two years it is bound to retard the return to normalcy, which is so much desired by operators in general.

Helps Small Refiners

This, of course, is not the principal reason for this reduction in crude but it is believed to be one of the main contributing factors. The several recent cuts in gasoline, together with cuts in Mid-Continent crude, are also prime factors in the action taken by the Standard. This cut in crude, without a corresponding cut in gasoline, was very welcome to the small refiner as it increases his margin of profit, which was reduced quite materially by two recent cuts in gasoline without changing the price of crude. The new schedule of prices affects all contracts made on and after October 9 but does not affect existing contracts until 10 days later. This 10-day period gives all parties, affected in previous contracts, time in which to ratify or nullify existing contracts. For the latter reason it affords a means for independent operators to secure some of the oil which has been going to the Standard, if they care to do so.

These present low prices also permit independent shippers and refiners to pay a small bonus in order to secure contracts for additional oil, if conditions warrant. The Standard has been making contracts for three-year periods and controls the greater bulk of production of independent operators at Long Beach, Huntington Beach and Santa Fe Springs. For this reason it has been difficult of late for some of the smaller refining companies to secure oil. The greater majority of the contracts made prior to October 9, however, will undoubtedly be ratified and the cut in crude accepted.

Aside from the cut in crude, probably the most important development during the week was the decline in the State's production. Both Huntington Beach and Santa Fe Springs will show declines in production during the month of September but Long Beach will undoubtedly show a material gain. A net increase of about 15,000 bbls. a day is looked for in the total output for the State.

Operators in the San Joaquin Valley are still inactive and, while many of them view the decline in production in Southern California with a feeling of confidence, they are not growing over optimistic as they realize the menace which exists in Compton and Torrance. Practically none of the wells shut in a year ago is being pumped except in a few isolated cases where wells require attention. During the past week the Associated Oil Co. shut in 400 additional wells with a daily output of approximately 5,000 bbls. in the Kern River Field. The Associated has been purchasing a large quantity of Southern California oil and moving it to its Avon refinery by tankers for several months. Notwithstanding the fact that the haul from Los Angeles to San Francisco is longer than from Bakersfield to the latter, transportation charges by tanker from Los Angeles to Avon are, it is believed, less than pipe line charges from Bakersfield, and, because of this fact and on account of the better quality of Southern California oil, it is and has been replacing San Joaquin Valley crude for some time.

Santa Fe Springs

Completions in all three of the principal fields were quite small during the past week, reports showing only two new wells having been brought in at Santa Fe Springs. The largest well completed during the week was the Universal Oil Co.'s No. 4 Blanchard, which struck the pay at 4,640 feet and registered an initial daily production of 1,125 bbls. The oil from this well, which tests 32.8 degrees and shows a cut of 1 per cent, is flowing through a 1⅝-inch bean under a pressure of 300 pounds. The only other satisfactory well put on production during the week was C. C. Julian's No. 7, which came in doing 600 bbls. of 33.5 gravity oil with a cut of 5 per cent. This well was completed at 4,650 feet and is flowing through a ⅞-inch bean under a pressure of 250 pounds. The General Petroleum Co. drilled No. 85-A Santa Fe to 3,554 feet and tried to make a producer of it from the Foix sand at this depth without success. The well was swabbed in and flowed at the rate of approximately 100 bbls. of fluid a day for a short time and then sanded up. Because of the fact that most of this production was water, about 75 per cent, the well will be deepened to the Meyer sand. Lack of completions was mainly responsible for the decrease in the daily output of this field during the past week, and, although several wells are being prepared for production, it is believed the completions during the coming week will also be rather small, indicative of a still further decline in the daily output.

Notwithstanding the fact that Santa Fe Springs showed a decline during the past week, it will not continue to show this large a decrease for many weeks, as some of the 50 wells now drilling below the 4,500-foot mark will be completed shortly and this new production will have a tendency to arrest this decrease and probably reduce the decline very materially. The Union Oil Co.'s No. 4 Bell, which is being deepened, picked up a nice sand at 4,675 feet, which carries lots of oil, and the company expects to secure a fair producer when this well is put on production within the next two or three weeks. A core from the same company's No. 16 Bell, at 4,610 feet, showed a good sand and, barring mechanical difficulties, this well will also result in a producer very shortly. The Amalgamated's No. 4 Dallugge is drilling in an oil sand at 4,723 feet and this well, together with No. 1 Green, should be an early completion.

The Standard Oil Co. also has several wells which are approaching completion depths and should be on production soon. The Standard's deep test, No. 2 Brownrigg-Keller, recovered from a fishing job which developed at 7,212 feet but shortly after the well started to flow hot salt water at the rate of about 2,000 bbls. a day. It was killed, but, with the appearance of salt water, it is believed that the company will suspend operations on this well shortly and abandon it. As has been expected for some time, the Fisher-Gregg Oil Syndicate abandoned its No. 1, a south line well, at 5,000 feet as a dry hole and with the suspension of drilling, development in this section has practically ceased. The L. B. Chase Oil Co. also suspended operations during the week and its No. 1 well, which reached a depth of 4,515 feet, will undoubtedly be abandoned in the very near future as a duster. The drilling of this well emphasizes the useless expenditure of money by the drilling of eight or ten wells in an effort to prove up territory where one hole would have been sufficient.

Long Beach

As was the case at Santa Fe Springs, the number of completions at Long Beach was small but, notwithstanding this fact, the daily production registered an increase. The Fred B. Foster Co.'s No. 55 was the largest well put on production, this new producer showing an initial flow of 1,700 bbls. It was completed with a 4½-inch oil string set at 4,005 feet and the oil, which is clean, tests 26.8 degrees. This new well, which increased the company's list of producers, will probably be followed within the next week or two by No. 65, which was completed at 4,003 feet. The company, however, has three fishing jobs in No. 46, No. 48 and No. 63. The Lang-Wall interests completed No. 2 Neet during the early part of the week and this well, the company's second completion, came in flowing 1,150 bbls. of 29 gravity oil, which showed a cut of 1 per cent. It was completed at 4,012 feet and is flowing through a ⅞-inch bean under a pressure of 510 pounds. The Coast States Oil Co. brought in No. 2 Campbell a short time later and on a production test this well showed an initial output of 1,100 bbls. Number 2 Campbell was completed with a 4½-inch oil string set

(Continued on Page 112)

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Following is a list of tankers, date departed, destination, kind of cargo and amount in barrels:

H. M. Storey, October 2, New York, crude	108,000
Agwihavre, October 2, New York, crude	90,000
Cerro Ebano, October 3, New Orleans, crude	95,000
Standard, October 4, New York, crude	110,000
Agwibay, October 4, Baltimore, crude	85,000
Wm. Green, October 4, New Orleans, crude	75,000
Shreveport, October 5, Fall River, crude	65,000
Hugoton, October 6, Baton Rouge, crude	76,000
Argon, October 6, Providence, crude	76 000
Wm. E. Hutton, October 7, Philadelphia, crude	75,000
Exports	
Broad Arrow, October 5, Orient, fuel	96,000
Tahchee (Br.), October 5, Shanghai, fuel	70,000
Gymeric (Br.), October 6, London, refined	40,000
La Crescenta, October 6, Kobe, fuel	55,000
Coastwise	
Alden Anderson, October 1, Avon, crude	65,000
La Placentia, October 1, Oleum, crude	70,000
Robt. E. Hopkins, October 1, Avon, crude	75,000
Frank G. Drum, October 2, Avon, crude	65,000
Lubrico, October 2, Richmond, crude	76 000
Paul Shoup, October 1, Avon, crude	80,000
W. S. Miller, October 2, Richmond, crude	75,000
U. S. S. Cuyama, October 3, San Diego, fuel	27,000
Trimountain, October 3, Seattle, fuel	65,000
Charlie Watson October 3, Seattle, refined	1[illegible],000
R. J. Hanna, October 3, Richmond, crude	80,000
Lebec, October 3, Martinez, crude	70,000
Liebre, October 4, Everett, fuel	70,000
Montebello, October 4, Oleum, crude	76,000
Capt. A. F. Lucas, October 4, Seattle, refined	25 000
Hulaco, October 4, Avon, crude	75,000
S. C. T. Dodd, October 5, Richmond, crude	70,000
El Lobo (Br.), October 5, Vancouver, crude	50,000
Mojave, October 5, Seattle, fuel	75,000
Cathwood October 5, Martinez, crude	77,000
Lubrico, October 6, Richmond, crude	80,000
Alden Anderson, October 6, Avon, crude	70,000
Col. E. L. Drake, October 6, Portland, refined	30,000
Robt. E. Hopkins, October 6, Avon, crude	70,000
W. S. Miller, Ocober 6, Richmond, crude	75 000
Paul Shoup, October 7, Avon, crude	79,000
From San Francisco	
Kewanee, Ocober 1, Portland, refined	25,000
Akera (Br.), October 1, Balboa, fuel	50,000
Atlas, October 2, Eureka, refined	16,000
La Purisima October 2, Astoria, fuel	40,000
San Fraterno (Br.), October 2, Buenos Aires, fuel	100,000
Scottish Strath (Br.), October 3, Shanghai, fuel	60,000
Atlas, Ocober 5, Aberdeen, refined	15,000
Lebec, October 6, Seatle, fuel	60,000
Frank G. Drum, October 7, Honolulu, fuel	70 000
From Gaviota	
W. S. Porter, October 4, Astoria, fuel	55,000
From Port San Luis	
Los Angeles, October 4, Victoria, fuel	65,000
Stockton, October 6, Manila, fuel	72,000

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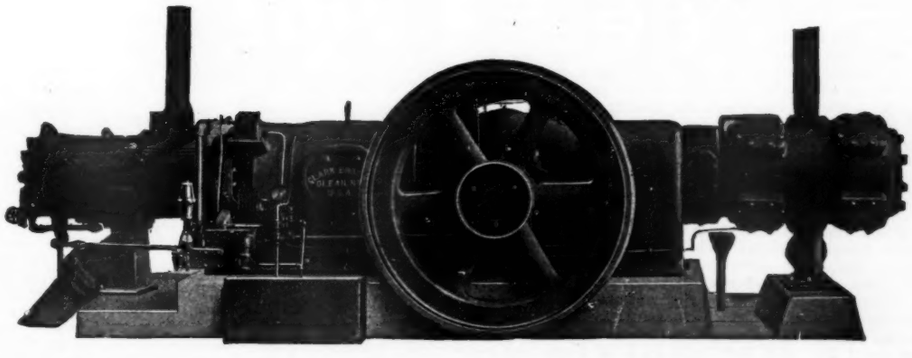
And they asked me how I did it,
And I gave 'em the Scripture text,
"You keep your light so shining
A little in front o' the next!"
They copied all they could follow,
But they couldn't copy my mind,
And I left 'em sweating and stealing
A year and a half behind.

—*Kipling*



The original can be seen at the Tulsa International Petroleum Exposition and Congress, booths D-9, 10, 11 & 12.

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Gulf Coast Oil Operations

By P. L. McGreal

Hockley Dome possible producing formation. Gulf Production Co.'s No. 5 Winifree fee, Orange Pool, deepened, makes 1,400 bbls. Same company's No. 12-A Wright, Goose Creek, makes 150. Joint test of Texas Co. and Vacuum, extends Hull Pool 2,000 feet. Cin-Tex Co.'s No. 2 Mid-Ojulas, 125.

HOUSTON, Tex., Oct. 15.—It looks as if Hockley Dome, a saline elevation, 25 miles northwest of Houston, in Harris County, is about to be added to the list of producing domes in the Gulf Coast region, following exploration work that dates back 20 years. Very few wells were completed in either the coastal pools or the southwestern fields during the week. The estimated daily average gross production continues to decline, showing a loss of 750 bbls. per day for the week.

The Texas Exploration Co.'s No. 13 Warren, on the north side of the Hockley Dome, was tested during the week with two and one-half joints, or approximately 50 feet of screen, set at 1,816 feet in gyp with streaks of sand. The well made several heads and then sanded. The gravity of the product shows 32 Baume, which is rather high for the Gulf Coast region. The hole was washed and is now being bailed again. Conservative estimates say it will make a 25-bbl. well. Showings at shallower depths have been found at Hockley on the east and south sides of the dome, the rock salt having been found in some tests at 195 feet. More than 40 tests have been drilled on and around the dome during the past 20 years, the majority having been abandoned at shallow depths in rock salt. The first well of consequence is located on the slope of the dome about half way down the side and, if the general rule in the coastal region holds good, the real production should be found off the dome and out on the flats. The Texas Exploration Co. (H. T. Staiti and associates) opened the Damon Mound Pool in Brazoria County, 10 miles northwest of West Columbia and is credited with defining the salt area at Pierce Junction.

Hockley now takes its place with Big Hill, in Jefferson County; High Island, in Galveston County; Stratton Ridge, in Brazoria County; Barber Hill, in Chambers County, and Big Creek, in Fort Bend County, as prospective producing propositions. The last two named are already in the producing class, although but partially defined. The Houston Oil Co. has about 110 bbls. per day production at Big Hill from two wells with three more drilling. The Sun Oil Co. has 50 bbls. per day at High Island from one well with two more drilling. The Yount-Lee Oil Co. is also drilling there, while Beaumont parties have shallow sand tests under way nearer the center of the dome. A 1,200-bbl. well was developed on the northwest side of Stratton Dome one year ago, but it sanded and was lost. The Fairchild Petroleum Co., Freeport, Sulphur Co. and Quick Development Co. are each drilling one hole there now. The history of Big Creek was reviewed recently when the Gulf Production and Snowden & McSweeney's joint No. 6 Davis came in making 800 bbls. by heads at 3,880 feet. It sanded and is now being worked over. The same interests are now drilling No. 7 Davis at 875 feet, located 1,000 feet northwest from the sanded hole.

Palangana Dome Well

To the above definitely known salt domes must be added the Palangana Dome in Duval County, where R. L. Autry, of Houston, has a 20-bbl. well at 765 feet and is drilling two more on top of the dome. The Humble Oil & Refining Co.'s No. 3 Singer, on the southwest side of the dome, is drilling at 1,980 feet. Same company's No. 2 Walsh, south of Noleda, and the shallow Piedras Pintas Pool, went into rock salt early in the week around 2,800 feet, drilling into that formation for 60 feet. A feature of this test is that the rock salt was found 100 feet higher than in No. 1 Walsh, although No. 2 is more remote from the dome and, according to the general laws, as developed by experience, the salt should have been lower in No. 2 than in No. 1. About one month ago, the Gulf Production Co. located another salt dome in the southeastern part of Wharton County, getting the saline formations around 700 feet, but when the hole was deepened it flowed salt water. The test is standing idle and it is understood no more development work will be performed pending an adjustment of some title disputes.

The Roxana Petroleum Corp. is said to have located a salt dome in Chambers County, located 12 miles north of High Island and 2 miles west of Sea Breeze. The alleged dome was defined with the aid of an apparatus designed in Germany, which determines the presence of rock salt by gravity, the attractive qualities of the salt being less than other formations. Higher mathematics play a prominent part in making deductions from the gravity readings of the apparatus and its use is confined to those specially trained to operate it. The apparatus is said to be used extensively in Germany in locating salt, but was only recently introduced into the Gulf Coast regions of Texas and Louisiana. The Rycade Petroleum Co., a subsidiary of the Amerada Petroleum Corp., is using a similar apparatus at Markham, in Matagorda County, in an effort to determine the limits of the salt area there.

It will be noted that the use of the apparatus is limited to the two companies mentioned, both of which are foreign controlled. Thus far, none of the American companies have displayed much interest in it, preferring to determine the presence of rock salt by drilling.

Estimated Daily Average

The estimated daily average gross production for the Gulf Coast pools, the southwest fields, not including Luling and the shallow sand section of Milam County, is placed at 97,750 bbls. against an estimate of 98,500 bbls. last week. The estimate for the Gulf Coast pools alone is placed at 90,240 bbls., compared with 91,190 bbls. last week, representing a loss of 950 bbls. per day. The estimate for the Luling Field is placed at 9,300 bbls. The estimate for each district is as follows:

District—	Bbls.
Batson	1,275
Blue Ridge	840
Barber Hill	395
Dayton	80
Damon Mound	2,085
Edgerly	430
Goose Creek	13,500
Humble	6,390
Hull	21,300
Jennings	755
Markham	110
Orange	14,200
Pierce Junction	605
Spindletop	840
Saratoga	1,740
Sour Lake	5,575
Somerset and Piedras Pintas	3,450
Vinton	6,840
Welsh and Anse La Bute	80
West Columbia	14,400
Miscellaneous	3,860
Total	97,750

Gulf Coast Completions

In the Orange Pool, the Gulf Production Co.'s No. 5 Winifree fee, deepened to 4,275 feet, started flowing 1,400 bbls. initial. The Rycade Petroleum Co.'s No. 1-B State land is a 165-bbl. pumper at 3,890 feet. At Goose Creek, the Gulf Production Co.'s No. 12-A Wright is rated at 150 bbls. at 3,520 feet. On the southwest side of the Hull Dome, the joint test on the Hannah by The Texas Co. and the Vacuum Oil Co. plugged back from 3,500 feet where the bit went into heaving shale, to 2,990 feet and tested a sand passed up. It will probably make a 50-bbl. pumper. It extends the productive area 2,000 feet southwest. Hines & Co.'s No. 7 Martin, in the Jennings, La., Pool, is a 15-bbl. pumper at 1,625 feet. It is a worked over hole.

In nearly all the pools the casing is being pulled from the old holes and as much as possible of it is being salvaged. The casing has been pulled in more than 20 wells in the West Columbia Pool alone by The Texas Co. and the salvaging operation is to be applied to 40 more. Contracts are awarded to contractors who make a specialty of pulling casing at so much per foot.

Southwest Districts

In the Laredo districts, the Cin-Tex Oil Co.'s No. 2 in the Mid-Ojulas Field is a 125-bbl. well at 1,760 feet. It is located 1,600 feet east from No. 1 which was abandoned as a duster at 1,000 feet and will now be deepened in the hope of getting the same sand as No. 2. The runs of the Magnolia Petroleum Co. from the Mirando City-Schott and Aviator districts in Laredo County during September total 35,983.35 bbls., or an average of 1,196.44½ bbls. per day. It was run into storage at Mirando City.

(Continued on Page 110)

Fields of the Central West

By Whit.

TOLEDO, Ohio, Oct. 15.—Few completions were reported for the week from the Central West fields, the bulk of those reported coming from the eastern Kentucky fields, while for the first week in many months, not even one completion was reported from the old Lima Field of northwestern Ohio. The same condition prevailed in the Central Ohio Field.

Operators are of opinion that crude prices have about reached the lowest figure and that better things are in sight. Preparations are being made for an active drilling campaign in all the Central West Field.

In Florida there are 14 wells reported drilling or about ready to start. In Georgia there are 5 under way; in Alabama, 12; Mississippi, 20; and in Tennessee there are 30, and when these are completed will give those territories a pretty good testing. The wells in each of those states are wide apart and each tests out a wide area of territory.

The Paragon Refining Co. at Toledo, reports that the Paragon Development Co. expects to complete its pipe line from the Cumberland and Monroe County fields to Glasgow, Ky., a distance of 45 miles, about November 1, and then the line will be tested out, and operators will have an outlet for their crude.

Indiana-Illinois Fields

Neither the old Trenton Rock Fields of eastern-central Indiana, nor the Princeton Field, of southwestern Indiana reported any completions for the week, and the Illinois Field reported but three completions, none of any great value. In Oblong Township, Crawford County, on the Illinois side, the No. 23 of Seth McGee, on the William Wall, Section 9, pumped 2 bbls. In Prairie Township, same county, the Watson Oil Co.'s No. 5 E. Wilburt, Section 13, was dry and Dr. O. L. Baldridge drilled a dry hole in a test on the C. H. Wade, Section 5. Top of sand was found at 1,015 feet and bottom at 1,040 feet and drilled a total depth of 1,069 feet. The well shows for much less than a barrel and considered no good as a pumper.

Eastern Kentucky

Operators throughout the eastern Kentucky fields are not rushing development work, but are keeping busy in the North and South Weir Fields of Johnson, Lawrence and Magoffin Counties, with prospects of an interesting play in Floyd and other counties over the Big Sandy Valley. Outside of the present producing area there will be little accomplished during the winter, but with good roads and an early spring a tremendous amount of wildcatting is bound to be done. Some wildcatting has already started that will be finished before the close of the year.

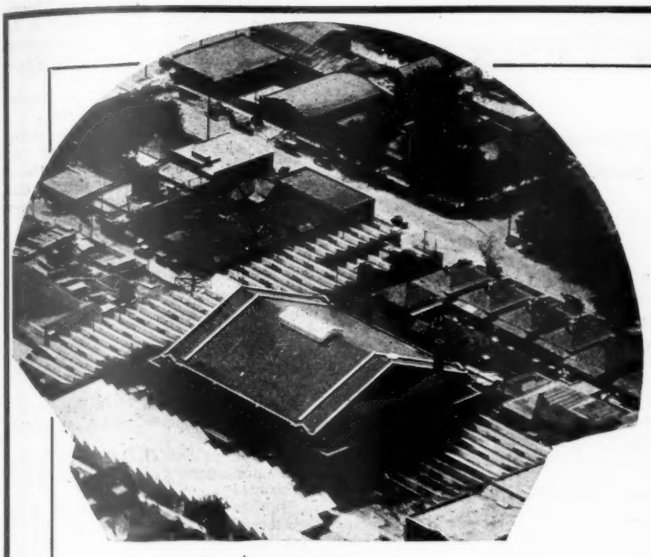
According to report the territory between Paintsville and the Tennessee line will be given deep tests. This is in the mountains and the theory is that some excellent gas territory will be found.

Millions of dollars have been spent in the Johnson-Magoffin-Lawrence County Fields for development in both the Weir and Berea sands during the past few years. In 1922 Johnson and Magoffin Counties produced 2,178,863 bbls. of oil which sold for $4,690,559.47. This amount has almost all been placed in the field for development. A large amount has also been left the farmers of the two counties for royalty, in addition to a large amount for development work. Most of the labor is native, that could hardly eke out a living before the discovery of oil, but things have changed and the Big Sand Valley is becoming a wealthy section. The towns, such as Ashland, Louisa and Paintsville, show wonderful improvement the past few years, brought about by money from oil.

The construction of better roads will mean additional money for the counties mentioned. Many of the residents and landowners now realize that the most important thing is the construction of passable roads.

Martin and Floyd Counties to the south of the Johnson and Magoffin County Fields are being developed and the coming year will see a great development in Lawrence, Johnson, Magoffin, Floyd, Martin and Elliott, and farther south in Pike, Harlan and other counties toward the Tennessee border. In August and September, Lee County, in the eastern center of the State, led in the production of oil, while Magoffin County was second and Johnson third. Another few months of active development will bring the Big Sandy country ahead of Lee County area in production. The low price of oil has retarded development in the Big

(Continued on Page 86)



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domes must be added the Palangana Dome in Duval County, where R. L.

Pierce Junction 605
Spindletop 840

rence and Magoffin Counties, with pros-

(Continued on Page 86)

East Central Texas

By Staff Correspondent.

Powell establishes a new high record of production, 215,115 bbls. a day, and an average for the week of 204,750 bbls. Humble Oil & Refining Co. averaged over 80,000 bbls. a day. Tidal-Buttram Oil Co. produced 50,000 bbls. on one day. Humphreys production stays around 28,000 bbls. a day.

CORSICANA, Tex., Oct. 15.—The Powell Field was producing at the rate of 235,000 bbls. a day this morning. It jumped from 180,000 bbls. a day on Saturday, October 6, to 205,921 bbls. on Monday, October 8, and on Saturday, October 13, was producing 215,115 bbls. Over Sunday a batch of new wells were completed, which brought the production up to what is today estimated at 235,000 bbls. Only two other fields in the United States are producing more oil than Powell, those being Santa Fe Springs, and Long Beach, in California.

The present production of Powell has upset the calculations of every oil company operating in the field. Long ago several of the large companies in the field cut down their storage programs because they concluded that the peak had been reached and that to carry out the original storage program would mean building tanks that would never be filled. The events of the past week have changed the whole Powell situation. The Humble Oil & Refining Co., the largest producer in the field, which had cut its original storage program to 25 80,000-bbl. tanks, has increased the order to 35, and may yet go through with its original program, which called for more than 40 big tanks.

The Cobden Fuel Co., which has 1,000 000 bbls. of storage room on its tank farm, has over 900,000 bbls. of oil in storage and will soon be full, with no outlet from the tank farm, which may temporarily put it out of the market as a buyer.

The tremendous flood of oil threatens to glut the market here. The Prairie Pipe Line Co. takes only the crude produced by the Humphreys Oil Co., and is running daily 23,000 bbls. of this. The Sinclair pipe line which, like the Prairie, is running only Humphreys oil, is taking care of about 9,000 bbls. a day. The Texas Co., it is said, is not in the market for more Powell crude than it is running. The Magnolia Pipe Line, while it has a carrying capacity of 70,000 bbls. a day, is running only half that amount, and it is said the company is not in the market for any more. The Humble Oil & Refining Co., which runs its own production and is also buying outside oil, cannot take care of all the runs in its pipe line. It is shipping 26,000 bbls. by this means, but is also shipping 20,000 bbls. a day by tank car and storing the remainder. It is running over 91,000 bbls. a day. The Tidal-Buttram Oil Co. has so much production that it is taxing the facilities of the pipe lines to take care of its flush oil, although the company is storing some of the crude.

Sensational New Wells

Twe sensational incidents marked the operations of the past week. The most important of these was the completion of the E. L. Smith Oil Co. & Wheelock's No. 1 Keith, on the Matthews survey, which came in at 7,000 bbls. A good well was looked for when it was learned that this test logged the chalk from 2,043 to 2,546 feet. Pipe was set at 2,890 feet. This well lies nearly midway between two deep dry holes drilled by Wheelock and others, one to the west on the J. Brassie farm, Bragg survey, drilled to 3,309 feet and the other to the east, on the C. Barron farm, Harris survey, drilled to 3,175 feet. In the early days of the Powell development, these dry holes were believed to cut off all chance of production in that part of the field, but as the Golden Lane extended its narrow way southwesterly, it was found to be directed midway between the two failures and hope sprang up that the field might make its way between them and extend on to a length that no man could positively define. The Smith Oil Co.'s well has been anxiously watched by many operators and lease holders, and now attention is centered on the test of Pickens & Webster on the oByd farm, Bragg survey, about 1¼ miles southwest of the Smith Oil Co.'s well. Pickens & Webster have made a mystery of their well. No strangers are permitted on the derrick floor and it has been impossible to get definite information on it. It is reported the well had had no chalk as deep as 2,400 feet, and if this report is true it looks unfavorable, but as it is unconfirmed, a few days must elapse before the true status of the well can be made known.

19,000 Barrels a Day

The other sensation of the week was the completion of the Tidal-Buttram Oil Co.'s No. 1 Crews, in the northeast corner location of the farm, which is on the Harris survey. This well got sand at 2,930-62 feet and made 16,000 bbls. the first day, and on Saturday was flowing 19,000 bbls. It is one of the largest wells completed in the field thus far. It extended the field a little to the west, but the E. L. Smith Oil Co.'s new well on the Keith farm is three-quarters of a mile south of it. The Golden Lane from the Corsicana Deep Well Drilling Co.'s discovery well completed last January to the E. L. Smith Oil Co.'s well on the Keith farm, is now 6¾ miles long. It averages in width about 3,000 feet, the recent development showing a broader sand area than was indicated in the northeasterly end of the field, where operations were opened.

The completion of the giant gusher on the Crews farm jumped the Tidal-Buttram Oil Co.'s production up to about 50,000 bbls. a day. Next to the Humble Oil & Refining Co. it is the largest producer in the field. The Humble company's production passed the 81,000-bbl. mark early last week, but at the close of the week had fallen to 80,000 bbls. The Humphreys Oil Co. averaged around 28,000 bbls. a day throughout the week.

The Skelly Oil Co.'s No. 2 Ramsey, which was swabbing 275 bbls., was drilled a little deeper and its production increased to 3,800 bbls. a day naturally. Occasional cleaning out of the wells that are on the swab might help all of them, as the vacuum from the pulling swab chokes a liner in a short time.

Below will be found a complete report of the production of the Powell Field by leases as of October 8. On that day the Humble Oil & Refining Co., with 86 wells, had a production of 81,446 bbls.; the Humphreys Oil Co., 68 wells, 28,120 bbls.; Tidal-Buttram Oil Co., 16 wells, 26,727 bbls.; and Gulf Production Co., 39 wells and 17,020 bbls.

Production report of the Powell Field by company and lease, as of October 8, 1923:

Lease and company—	No. Wells	Daily Prod.
B. F. Irvine, Atlantic O. P...	12	4,333
J. R. Gentry, Bass & Galloway	3	S.D.
I. N. Cerf, R. E. Brooks.....	1	4,194
G. Springfield, Cosden O. & G.	2	495
J. E. Christian, T. F. Hunter et al	3	212
W. J. McKie, J. K. Hughes Oil Co.	14	908
D. Blumrosen, Humble O. & R.	4	330
W. A. Brown, Humble O. & R.	5	3,100
I. N. Cerf Humble O. & R...	2	6,775
L. T. Davis, Humble O. & R..	2	2,133
J. R. Gentry, Humble O. & R.	9	1,238
J. R. Gentry (B), Humble O. & R.	2	500
W. C. Humphreys, Humble O. & R.	7	14,655
B. F. Irvine (A), Humble O. & R.	5	325
B. F. Irvine (C), Humble O. & R.	9	3,357
G. Kent, Humble O. & R.....	10	9,534
R. I. Kent, Humble O. & R..	1	95
W. J. McKie (A), Humble O. & R.	5	188
W. J. McKie (B), Humble O. & R.	7	4,603
J. S. Murchison, Humble O. & R.	2	2,655
J. Walker Pugh, Humble O. & R.	3	2,760
S. D. Ramsey, Humble O. & R.	6	3,552
S. D. Ramsey (B), Humble O. & R.	7	13,666
A. W. Fair, Humphreys Oil Co.	1	20
R. I. Kent, Humphreys Oil Co.	3	240
Robt. Kent, 44-A, Humphreys Oil Co.	7	1,155
W. J. McKie, Humphreys Oil Co.	42	26,350
J. O. Burke, Humphreys Oil Co.	1	125
W. N. Kenner, Humphreys Oil Co.	2	25
G. Springfield, Humphreys Oil Co.	2	205
O. C. Barron, Gulf Prod. Co.	1	1,010
R. J. Barry, Gulf Prod. Co...	1	50
E. Blumrosen, Gulf Prod. Co.	3	340
J. E. Christian, Gulf Prod. Co.	6	640
W. J. McKie, Gulf Prod. Co..	8	725
W. Smith, Gulf Prod. Co.	4	1,630
J. Murchison, Gulf Prod. Co..	8	11,100
W. J. McKie, Gulf Prod. Co..	1	425
J. R. Gentry, Gulf Prod. & Kirby Pet.	7	1,100
W. J. McKie, Kirby Pet. Co..	1	1,417
W. A. Brown, Kirby Pet. Co.	3	1,158
B. F. Irvine, Magnolia Pet..	1	20
J. O. Burke, Mitchell & Jones	2	510
P. A. Chapman, McMan Oil Co.	11	2,738
R. F. Kent, New Domain Oil Co.	3	910
E. Blumrosen, Roxana Pet..	4	200
W. J. McKie (Broyles), Roxana	8	900
W. J. McKie (Buff), Roxana Pet.	6	8,317
E. Blumrosen, Simms Oil Co.	2	389
J. R. Gentry, Skelly Oil	2	165
S. D. Ramsey, Skelly Oil ...	2	5,110
S. D. Ramsey, Smith Oil Co.	4	1,687
R. I. Kent, Sun Oil	4	1,225
G. Springfield, Sun Oil Co..	1	100
W. J. McKie, Texas Co. and Magnolia Pet.	8	720
I. T. Kent, The Texas Co. and Magnolia Pet.	12	12,325
S. D. Ramsey, Tidal-Buttram Oil Co.	8	13 177
S. D. Ramsey (B), Tidal Buttram Oil Co.	6	500
W. L. Phillips, Tidal Buttram Oil Co. 2	2	13,050
J. O. Burke, U. S. Tex Oil Co.	4	450
S. D. Ramsey, U. S. Tex Oil Co	4	390
R. S. Thompson, Tidal Oil Co.	4	0
J. O. Burke, Witherspoon Oil Co.	5	3,810
J. E. Christian, Webster et al	1	105
Total	326	205.921

The average daily production for the week in East Central Texas was 254,734 bbls., of which Mexia is credited with 46,059 bbls.; Currie, 3,800 bbls., and Corsicana, 700 bbls., and Powell, 204,175 bbls.

19,000-Barrel Well

It is said that the Tidal-Buttram Oil Co.'s 19,000-bbl. well on the Crews farm nas been exceeded in flush production by but one well in the field. A number of wells that were reported to have shown around 20,000 bbls. production in their initial stage quit early. The most noteworthy of these was the well of Thompson and others drilled last spring in the northeastern end of the field. It made 20,000 bbls. in a day and then stopped flowing and never "came back."

Following are the other completions for the week in the Powell Field:

Tidal Oil Co.'s No. 3 Phillips, Harris survey, sand at 2,930-70 feet, 7,000 bbls.

Tidal Oil Co.'s No. 5 Phillips, Harris survey, sand at 2,948-70 feet, 3,000 bbls.

G. Kent's No. 1 fee, Harris survey, sand at 2,930-58 feet, 6,000 bbls.

Humphreys Oil Co.'s No. 45 McKie, Broyles survey, sand at 2,830-70 feet, 300 bbls.

Humphreys Oil Co.'s No. 51 McKie, Buffington survey, sand at 2,892-2,909 feet, 1,300 bbls.

Humphreys Oil Co.'s No. 52 McKie, Buffington survey, sand at 2,892-2,962 feet, 1,500 bbls.

McMan Oil & Gas Co.'s No. 9 Chapman, Broyles survey, sand at 2,840-62 feet, 200 bbls.

Humphreys Oil Co.'s No. 50 McKie, Buffington survey, sand at 2,919-45 feet, 1,200 bbls.

Humphreys Oil Co.'s No. 5 Kent, Smith survey, sand at 2,938-43 feet, 250 bbls., 30 per cent water.

Gulf Production Co.'s No. 6 Barry, Murchison survey, sand at 2,933-76 feet, 2,000 bbls.

Humble Oil & Refining Co.'s No. 6 Humphreys, Smith survey, sand at 2,926-80 feet, 1,300 bbls.

Humble Oil & Refining Co.'s No. 6 Humphreys, Smith survey, sand at 2,926-80 feet, 1,000 bbls.

Humble Oil & Refining Co.'s No. 7 Humphreys, Smith survey, sand at 2,937-77 feet, 2,600 bbls.

Humble Oil & Refining Co.'s No. 7-B McKie, Buffington survey, sand at 2,845-60 feet, 2,400 feet.

Humble Oil & Refining Co.'s No. 7-B Ramsey, Smith survey, sand at 2,853-2,943 feet, 3,200 bbls.

McMan Oil Co.'s No. 4 Chapman, Anderson survey, sand at 2,811-55 feet, 350 bbls., 10 per cent sediment and water.

Roxana Petroleum Corp.'s No. 6-A McKie, Buffington survey, sand at 2,859-2-932 feet, 1,120 bbls.

Roxana Petroleum Corp.'s No. 2-A McKie, Buffington survey, sand at 2,859-2,930 feet, 400 bbls.

Gulf Production Co.'s No. 2 Murchison, Barry survey, sand at 2,950-76 feet, 2,400 bbls.

Gulf Production Co.'s No. 7 Murchison, Barry survey, sand at 2,929-76 feet, 2,200 bbls.

Gulf Production Co.'s No. 8 Murchison, Barry survey, sand at 2,943-78 feet, 2,400 bbls.

Humble Oil & Refining Co.'s No. 1 Murchison, Barry survey, sand at 2,971-76 feet, 1,500 bbls.

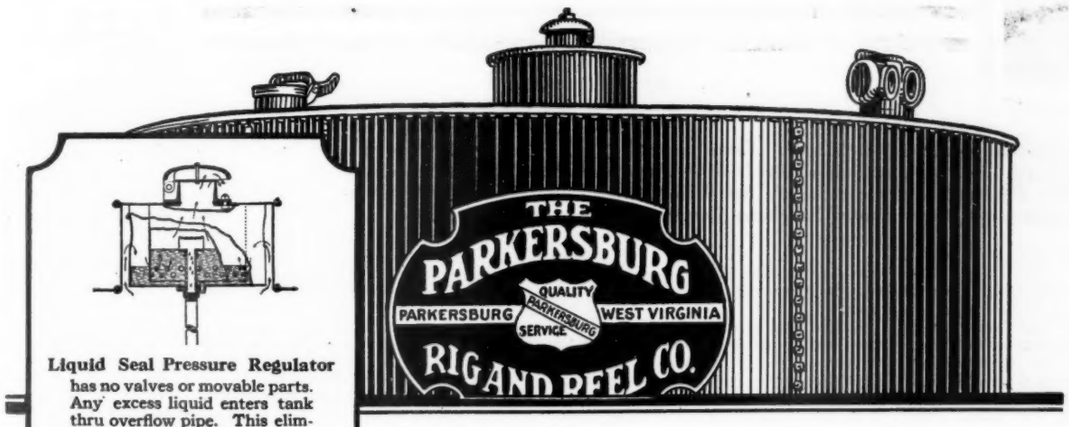
Humble Oil & Refining Co.'s No. 3 Murchison, Barry survey, sand at 2,998-3,006 feet, 1,650 bbls.

New Domain Oil Co.'s No. 2 Kent, Smith survey, sand at 2,976-90 feet, 750 bbls.

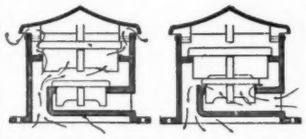
Tidal Oil Co.'s No. 6 Thompson, Rahm survey, sand at 2,974-3,004 feet, 350 bbls., 8 per cent sediment and water.

There are 28 derricks up and 108 wells drilling, 51 with casing set and 2 shut down.

New derricks up included the following: Finley and others' No. 1 Kayser 19 acres, Doom survey; Gulf Production Co.'s No. 2 Bush, Smith survey; Humble Oil & Refining Co.'s No. 3 and 4 Cerf; Humble Oil & Refining Co.'s Nos. 9, 10, 11, 12, 13, 14 and 15 Davis, Barry survey; Nos. 4-A and 5-A Flemming, Greer survey; No. 14 Humphreys, Smith survey; Hughes Development Co.'s No. 1 Alexander 60 acres, Smith survey; G. Kent's Nos. 9 and 10 G. Kent, Harris survey; Humphreys Oil Co.'s No. 1-A Robert Kent, Smith survey; Atlantic Oil Producing Co.'s Nos. 2, 3, 4 and 5 Kellum, Harris survey; Gulf Production Co.'s No. 5 Barron 55 acres; Nos. 4 and 5 Mrs. Crews, Harris survey; Mutual Oil Co.'s No. 1 Howell, Mathews survey; Tidal Oil Co.'s Nos. 6 and 7 Mrs. Crews, Harris survey; Smith Oil Co.'s No. 2 Keith, Mathews survey.



Liquid Seal Pressure Regulator has no valves or movable parts. Any excess liquid enters tank thru overflow pipe. This eliminates danger of possible high pressure.



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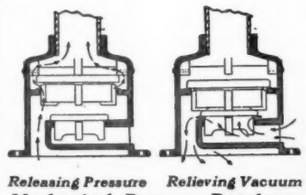

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*District Offices

North-Central Texas Field

By Dan F. Dugan

Production increases 4,389 bbls. Texas Co.'s No. 5 Carter Brothers makes 350 bbls. In semi-completions Bridwell & Heydrick's No. 2 Carter Brothers swabs 500 bbls.; Sunshine State's No. 9 Carter Brothers, 400. Pender Production Co.'s No. 1 Davis, Stephens County, 150 bbls.

FORT WORTH, Tex., Oct. 15.—Producers in the North Central Texas Field are in a much better frame of mind and are certain that future conditions will be more encouraging as the result of the lifting of the prorating run order and the increase in the posted price by at least two of the purchasing pipe line companies. The new posted price increases 36 to 38 9/10 gravity crude from $1.00 to $1.35 a barrel and the new order authorizes a 100 per cent purchase of all oil produced on a lease and also all spot oil in storage which has accumulated since August 19.

The reports of the production runs for the past week show that three pools made substantial gains and three show small losses as compared with the previous week. Those that increased their production over the previous week were Burkburnett, 1,095; Iowa Park, 2,020, and the wildcat pools, 1,520 bbls. daily. Total losses registered from the three pools amounted to only 246 bbls. daily, with a gain from all the pools in the field of 4,389 bbls. daily and a total production of 116,244 bbls. daily as against 111,855 bbls. daily for the previous week.

Pioneer District Activity

There were no sensational happenings reported from the North Central Texas district this past week. A little more activity is reported from the territory in the vicinity of the Moore No. 2 Ackers in the Pioneer district, Eastland County and in Archer County.

Moore and others will spud in this week No. 1 Faulkner and the Pennant Oil & Gas Co. has a rig up for No. 1 Albin, both in the territory adjacent to the Ackers gusher.

Production from the discovery well still holds close to its initial flow of more than three weeks ago, and no additional drilling has been done since that which brought an increase in the flow shortly after the well came in and the bottom of the hole still stands less than three feet in the pay. Late figures give its production around 400 bbls. daily.

Archer County's semi-completions showing for the largest initial production are Bridwell and Heydrick's No. 2 Carter Bros., swabbing 500 bbls. at 1,585 feet and the Sunshine State Oil & Refining Co.'s No. 9 Carter Bros., 400 bbls. at 1,580 feet.

The largest completion reported from the county for the week is the Sunshine State Oil & Refining Co.'s No. 6 Carter Bros., 250 bbls. at 1,580 feet.

One completion was reported from the deep lime producing section, the Pender Production Co.'s No. 1 Davis in Stephens County at 3,270 feet is showing for around 150 bbls. daily.

Archer County

There was a noticeable renewal of activities in this county during the past week, the usual number of completed producers and several new locations are reported. Production runs from the county which have been showing a gradual falling off during the past six weeks, have once more, because of the connecting up of a few of the late completions, taken an upward trend, and the week's report shows an increase of approximately 2,000 bbls. daily over the figures of the previous week.

A test that is attracting attention is the Barclay and Meadows No. 1 Wilson in what is considered wildcat territory. This test has picked up a good sand at 1,535 feet, after coring into a few inches it showed considerable oil. Casing is being run. The bringing in of a commercial producer at this point would be the means of adding many acres of virgin territory for future development.

The Peterson Pool, which during the last few weeks showed very little actual drilling, is again active and has several wells drilling and others in various stages of completion. The test of Jerome S. Stone, No. 1 Wilson, is drilling at 800 feet. Grandberry and Gilchrist have reached a depth in the neighborhood of 1,525 feet in their No. 1 Wilson, Block 885.

Two tests picked up the pay early in the week and are testing. The Humble Oil & Refining Co.'s No. 1 Netherton picked up a sand at 1,280 feet and drilled it 9 feet. Casing is being set and bailing will start in the next day or so.

The 66 Oil Co.'s No. 2 Wilson, to the north and east of the Chenault-Lee producer, is making preparations to commence bailing and testing a sand at 1,589 feet.

The Texas Co.'s No. 5 Carter Bros. at 1,580 feet is showing 350 bbls. daily through a 2½-inch tubing.

Wichita County

There is some increase in development the past week in Wichita County. New tests are starting and new locations are being made from the south bank of the Red River to Beaver Creek, near the north line of Archer County. Sunshine Hill, which has been practically devoid of drilling for the past year, has three derricks up for tests. Kemp and Ferris, pioneer operators in that section, have a rig up on the Eads tract and are installing machinery to start drilling soon.

The South Electra Pool, which formerly furnished the major part of the county's oil activity, is at present showing very little new development. Two new locations have been made, one by The Texas Co., which has a derrick up for No. 285 Waggoner and one by the Texhoma Oil & Refining Co., which is locating No. 10, Lease F. Waggoner, in Section 33, Block 5.

On the Rio Bravo tract in the South Pool, the Magnolia Petroleum Co. is rigging up a machine to drill into the sand at 1,402 feet and has set 6⅝-inch casing in the 26-A Waggoner.

Completions reported in the Burkburnett and Hirschi districts are The Texas Co.'s No. 1 Potter, dry at 2,025 feet; Magnolia Petroleum Co.'s No. 6 Holtzen, 10 bbls. at 1,850 feet; Panhandle Refining Co.'s No. 1 Myers dry at 2,039 feet.

Drilling—Baldwin Bros. No. 12-C Kennedy, drilling at 585 feet; Cooper and others' No. 1 Hearne, drilling in blue shale at 1,995 feet; Gulf Production Co.'s No. 12 Dale, showing for a splendid producer at 1,843 feet; Langford and others' No. 7 Langford, swabbed 150 bbls. first 10 hours from a sand at 1,850 feet; Lewis and others' No. 2 George, drilling without any showing at 2,510 feet; McDabb and others' No. 2 Potter, drilling at 1,735 feet; No. 2 Saunders, at 1,525 feet; Magnolia Petroleum Co.'s No. 90 Reilly, drilling with a machine at 215 feet; No. 98 Reilly, drilling in brown shale at 1,785 feet; No. 99 Reilly, drilling in rock at 1,585 feet; Northwestern Oil Co.'s No. 1 Eads, finished reaming and will test a sand at 1,720 feet for an increase in production. John O'Neil's No. 2 Saunders, drilling at 835 feet; Perkins and others' No. 1 Saunders, at 1,615 feet; Sun Oil Co.'s No. 23 Hirschi, drilling at 305 feet; Bonner and others' No. 3 Beach, setting 6⅝-inch casing on top of a sand at 1,190 feet; Robinson Oil Co.'s No. 6 Roller, drilling at 1,115 feet.

Wichita-Electra

Completions—Magnolia Petroleum Co.'s No. 1-C Waggoner, 38 bbls. at 1,740 feet; Texhoma Oil & Refining Co.'s No. 1-H Waggoner, dry at 2,000 feet.

Drilling—Holcomb and others' No. 1 Zeiset, drilling at 1,405 feet; Magnolia Petroleum Co.'s No. 1 Tuttle, drilling without any showing at 2,060 feet; No. 6 Douglas, drilling at 210 feet; Apperson and others' No. 1 Ancell, fishing for underreaming lugs at 960 feet; Bridwell and others' No. 1 Edgerly, drilling at 105 feet; Knight and others' No. 1 Fasset, at 915 feet; Magnolia Petroleum Co.'s No. 5-B Douglas, spudding at 60 feet; No. 1 Waggoner, drilling in shale at 905 feet; Noel and others' No. 1 Waggoner, tools in the hole and shut down for 5 3/16-inch casing at 1,950 feet; Ryan Petroleum Co.'s No. 11 Nance, rigging to pump and test a sand with 500 feet of fluid in the hole at 1,215 feet; Texhoma Oil & Refining Co.'s No. 2-B Burnett, fishing for underreaming lugs at 1,265 feet; Stedham and others' No. 2 Daume, looks like a producer at 1,800 feet.

Archer County

Completions—Atlantic Oil and Production Co.'s No. 1 Wilson, dry at 1,080 feet; Bell and others' No. 1 Wilson, 175 bbls. at 1,590 feet; Chenault and others' No. 2-C Wilson, 125 bbls. at 1,585 feet; Featherstone and others' No. 1-B Wilson, 30 bbls. at 1,585 feet; Kentucky Oil Corp.'s No. 1 Wilson, 50 bbls. at 1,395 feet; Maer and others' No. 5 Carter, 200 bbls. at 1,580 feet; Payne and others' No. 2 Wilmot, 60 bbls. at 1,605 feet; 66 Oil Co.'s No. 1 Wilson, 25 bbls. at 1,585 feet; Staley and others' No. 2 Carter Bros., 125 bbls. at 1,585 feet; Sunshine State Oil & Refining Co.'s No. 6 Carter Bros., 250 bbls. at 1,580 feet; Swastika Oil Co.'s No. 7 Richardson, 115 bbls. at 1,375 feet; The Texas Co.'s No. 5 Carter Bros., 350 bbls. at 1,580 feet.

Drilling—Barnes and others' No. 1 Wilson, reaming on top of an oil sand at 1,608 feet; Bell and others' No. 2-A Wilson, setting 6⅝-inch casing at 1,578 feet; Bohler and others' No. 1 Wilmot, rigging up a machine to test a sand showing considerable oil at 1,582 feet; Burns and others' No. 1 Parrish, setting 6⅝-inch casing on top of an oil sand at 1,580 feet; Carter and others' No. 2 Ferguson, testing an oil sand at 1,765 feet; Chenault and others' No. 3-C Wilson, rigging to bail and test a sand showing considerable oil at 1,585 feet; No. 3-B Wilson, drilling in brown shale at 1,135 feet; Clayton and others' No. 2-B Richardson, testing an oil sand at 1,365 feet; Dale and others' No. 4 Wilmot, drilling at 405 feet; Empire Gas & Fuel Co.'s No. 1 Wilson, cemented 6⅝-inch casing and waiting for cement to set before drilling deeper at 1,616 feet; Featherstone and others' No. 2-B Wilson, drilling at 805 feet; Gwynn and others' No. 2 Mrs. Carter, pumped 55 bbls. of iol and 15 bbls. of water and not yet completed at 1,570 feet; Hawkins and others' No. 2 Carter Bros., putting on jack, sand showing oil at 1,508 feet; Jetter and others' No. 1 Wilson, drilling at 1,485 feet; Lane and others' No. 1 Parrish, shut down for orders on top of a sand showing oil at 1,392 feet; Lynch and others' No. 1 Bridwell, drilling in brown shale at 1,125 feet; Maer and others' No. 1 Netherton, drilling in blue shale at 1,300 feet; McGee Bros.' No. 1 Richardson, drilling at 730 feet; Moore and others' No. 1 Wilson at 655 feet; Nance and others' No. 1 Kotz, at 905 feet; Norton and others' No. 1 O'Donnell, underreaming 8¼-inch casing, total depth 1,115 feet; Oil Investment Co.'s No. 1-D Parrish, swabbed 50 bbls. and will drill a little deeper at 1,580 feet; Payne and others' No. 3 Wilmot, drilling at 1,255 feet; Petroleum Production Co.'s No. 5-C Wilson, testing an oil sand at 1,582 feet; Roberts and others' No. 4 Parrish, shut down on top of a sand showing oil at 1,573 feet; Shaw and others' No. 5 Ferguson, drilling at 205 feet; No. 12 Ferguson, at 105 feet; Smith and others' No. 1 Wilson, shut in on top of a sand at 1,392 feet; No. 2 Wilson, shut down on top of a sand showing oil at 1,593 feet; Staley and others' No. 1-C Wilson, has 1,200 feet of oil in the hole from a sand at 1,590 feet; No. 3 Mrs. Carter, drilling at 555 feet; Swastika Oil Co.'s No. 9 Richardson, testing a sand at 1,360 feet; Underwood Drilling Co.'s No. 1 Wilmot, drilling at 125 feet; Verschoyle and others' No. 1 Wilson, testing a sand at 1,397 feet; Dr. Wallace's No. 8 K. & K., has 600 feet of oil in the hole from a sand at 1,750 feet; Whitehead and others' No. 1 Kunkel, drilling in brown shale at 1,505 feet.

Young County

Drilling—Gulf Production Co.'s No. 2 Hockaday has a fishing job at 3,305 feet; Holcomb and others' No. 1 Bullock, drilling at 795 feet; Mid-Kansas Oil & Gas Co.'s No. 1 Gibson, topped lime at 3,750 feet, sidereaming with 1,000 feet of oil in the hole; No. 1 Moren, fishing at 1,165 feet; Dudley Miller's No. 2 Hughes, drilling in blue shale at 1,765 feet; Mutual Oil Co.'s No. 2 Glidwell, has a show of oil and gas and will drill deeper a sand at 1,965 feet; Nash and others' No. 1-B Williams, drilling at 1,355 feet; Robinson and others' No. 1 Grubbs, at 1,525 feet; Seaboard Oil & Gas Co.'s No. 4-A Hughes, at 605 feet; Snowden and McSweeney's No. 1 Carter, showing gas and water and drilling at 1,755 feet; Stovall and others' No. 1 Stovall, preparing to pump and test a sand showing some production at 2,140 feet; Texas Eureka Syndicate No. 1 Harrell, cleaning out after a shot without any showing at 4,060 feet; Whitehead and others' No. 1 Johnson, sidereaming for 6⅝-inch casing at 4,229 feet.

Stephens County

Completions—Pender Production Co.'s No. 1 Davis, 150 bbls. at 3,270 feet.

Drilling—Crittin and others' No. 1 Todd, drilling at 1,770 feet; Mid-Kansas Oil & Gas Co.'s No. 2 Cauger, sidereaming for 8-inch casing at 2,475 feet; The Texas Co.'s No. 19 Black, shot with 20 quarts, no show of oil at 4,135 feet; Texas & Pacific Coal & Oil Co.'s No. 8 Newell, fishing for 5-inch casing at 4,055 feet; Corbett and others' No. 1 Williams, has a show of oil and gas from a sand at 2,100 feet; Curry Pool Oil Co.'s No. 1 Jones, drilling in lime and shale below

(Continued on Page 92)

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DARLING
GATE VALVES

an upward trend, and the week's report first 10 hours from a sand at 1,850 feet; guson, testing an oil sand at 1,765 feet; (Continued on Page 82)

North Louisiana-Arkansas

By M. L. Vaughn

Humble Oil & Refining Co.'s No. 1 B. Goodwin, Union County, makes 2,000 bbls.; Amerada Petroleum Corp.'s No. 4 Lyell, 1,600; Monarch Oil Co.'s No. 1 Harrell swabs 800; Crosby Trustees' No. 2 Murphy swabs 700; Smith Refining Co.'s No. 1 Patton, Ouachita County area, flows 300 bbls.

SHREVEPORT, La., Oct. 15.—Webster Parish will witness the starting of a wildcat test of considerable interest within a few weeks, the operation having been located in the southwest quarter of the southwest quarter of Section 26-21-9, 8 miles from any previous development. It is to be drilled by R. J. O'Brien and associates who have leased a block of 4,000 acres. The location is in line directly between the Homer Pool and a gas producing area in Webster Parish.

From the standpoint of possible new production Caddo probably holds the main interest at present. The Louisiana-Texas Community Oil Co. No. 1 French, in Section 34-23-16, has a good showing of 31 gravity oil which stands 1,600 feet in the hole above 200 feet of salt water.

The test in Section 15-18-16, being drilled by Brewer and Sewell, on the Sharp lease, has set and cemented 6-inch at 2,046 feet, having suffered several days delay on account of slow transportation. Much interest is centered on this operation which should develop during the coming week.

The situation in Union Parish is somewhat less encouraging since neither of the most interesting operations has fulfilled expectations. The Union Parish Drilling Co.'s No. 3 Clark, in Section 17-23-1e, still holds possibly the greater probability of making a producer, having set 6-inch at 2,155 feet. Contrary to the general expectations Love Bros.' No. 1 Security Trust, Section 12-23-1w, bailed dry at 2,245 feet, having failed to encounter sand with oil in commercial quantity although there was a light showing of live oil at that depth. Arrangements are being made to proceed further with this test.

North Louisiana	
Caddo, light	8,645
Caddo, heavy	2,420
De Soto-Red River	5 690
Elm Grove	1,225
Haynesville	24,175
Homer	9,640
Bellevue	7,200
Total	58,995
South Arkansas	
El Dorado	10,875
Calion	8,725
Smackover, light	16,195
Smackover, heavy	90,255
Stephens	3,025
Total	129,075
Total both areas	188,070
Total last week	180,975
Increase	7,095

Smackover Completions

Completions in the Union County area of the Smackover district resulted in a much greater aggregate of production than for several weeks, the total being only 5 bbls. short of 6,300 bbls. The best well was brought in by the Humble Oil & Refining Co., which is securing 2,000 bbls. from No. 1 B. Goodwin, Section 3-16-15, completed at 1,990 feet by blowing with air. Another good well was completed by the Amerada Petroleum Corp., which brought in No. 4 Lyell, in the same section, flowing 1,600 bbls. from 1,985 feet.

Broderick & Calvert completed No. A-3, G. E. Murphy, Section 8-16-15, pumping 200 bbls. from 2,080 feet. The Crosby trustees are swabbing 700 bbls. from No. 2 Murphy, Section 15-16-15, completed at 2,055 feet. The Gladys Belle Oil Co. is pumping 150 bbls. from No. 7 Thompson, Section 7-16-15, completed at 2,080 feet. The Gulf Refining Co. completed No. 2 G. E. Murphy, Section 8-16-15, pumping 10 bbls. from 1,970 feet. Another small pumper was completed by the Houston Oil Co. which put No. 1 McClanhan, on the beam in Section 12-16-16, producing 15 bbls.

The Imperial Oil & Gas Co. completed No. 1 Central Bank, Section 12-17-15, pumping 300 bbls. of fluid, 95 per cent salt water from 3,145 feet. This is a noteworthy completion both on account of its location and the unusual depth at which the production was secured.

The Monarch Oil Co. brought in No. 1 Harrell, Section 17-16-15, from which they are swabbing 800 bbls., completed at 2,125 feet.

Page and associates are pumping 110 bbls. from No. 2 Murphy, Section 15-16-15, completed at 2,010 feet, and in the same section brought in No. 3 Murphy, flowing 300 bbls. from 2,055 feet.

The Simms Oil Co. is pumping 110 bbls. from No. 1 Childs, Section 8-16-16, completed at 2,635 feet, also noteworthy on account of the depth.

Drilling Operations

A sufficient number of new operations are in evidence in the Union County area of the Smackover district to maintain activity about on the same basis as on the preceding week. Several holes are evidencing a renewal of operations that have been shut down or temporarily abandoned and an attempt to make an oil producer will be made in the case of one well completed as a gasser late last year.

The Arkansas Natural Gas Co. is arranging to whipstock through casing in No. 1 Ferguson, Section 6-16-16, at 1,730 feet. The hole has been standing temporarily abandoned for some time at 2,020 feet. The Arkansas Pipe Line Co. set 6-inch at 1,980 feet in No. 3 Harrell, Section 17-16-15.

Barnsdale & Foster set 8½-inch casing at 1,970 feet in No. 1 J. Murphy, Section 17-16-15.

Chew and others are rigging up to drill No. 1 Harrell, Section 17-16-15. Crawford and Sebastian set 8-inch casing at 1,915 feet in No. 6 Giller, Section 14-16-15.

Delukie and others are rigging up to drill No. 2 Harrell, Section 17-16-15. Dickson and others have No. 1 Burton, Section 25-16-16, waiting orders at 2,060 feet after testing salt water. The Dunn Oil Co. is drilling at 1,410 feet in No. 1 McKinney, Section 18-16-15.

The Federal Petroleum Co. is drilling at 850 feet in No. 2 Hicks, Section 20-16-15. In Section 28-17-12 is drilling at 2,530 feet in No. 2 Union Saw Mill. Garrett and others are rigging up to drill No. 1 Robinson, Section 23-18-14. The Gulf Refining Co. is arranging to deepen No. 4 McDonald, Section 1-18-16 and has set 4½-inch casing at 2,250 feet.

Hall & Gann set 12½-inch at 60 feet in No. 2 Graves, Section 3-16-15. The Higgins Oil & Refining Co. set 6-inch casing at 1,855 feet in No. A-2 Murphy, Section 24-16-15 and is drilling at 1,780 feet in No. 1 Jameson, Section 21-18-15.

Humble Co.'s Work

The Humble Oil & Refining Co. set 6-inch casing at 1,970 feet in No. 2 J. E. Lawton, Section 7-16-15 and is drilling at 2,125 feet in No. 1 Saxon, Section 32-15-16. The Humphreys Petroleum Co. cemented back to 2,800 feet in No. 1 Massey, Section 17-16-15, which has been standing at 3,505 feet.

King and Timberlake are drilling at 1,200 feet in No. 1 Hodges, Section 1-16-17. Jones and others have derrick up for No. 3 Lawton, Section 10-16-15.

The Magnolia Petroleum Co. set 10-inch at 180 feet in No. 2 Campbell, Section 13-16-17. In Section 17-17-14 has No. 3 Moody standing 1,600 feet in oil at 2,170 feet; and in Section 8-17-14 is drilling at 930 feet in No. 1 Neely. The Murphy trustees tested a show of gas and no oil with salt water at 2,115 feet and plugged back to 2,090 feet in No. 2 Lawton, Section 7-16-15, and set 6-inch at 1,950 feet in No. 3 Lawton, in the same section and is drilling in sand at 2,070 feet with top of sand at 2,065 feet.

The Natural Gas and Petroleum Co. (formerly the Blue Grass Synd.) is arranging to deepen No. 1 Primm, Section 1-16-16, completed at 2,050 feet in December, 1922, as a 25,000,000-foot gasser with a spray of oil. Parish and others set 6¼-inch at 1,980 in No. B-3 C. L. Saxon, Section 4-16-16. The Pure Oil Co. is waiting on standard rig for No. 1 Craig, Section 15-16-15, at 2,015 feet and is rigging up to drill No. 2 Craig, in the same section.

The Rica Oil Co. has temporarily abandoned No. 1 Burton, Section 30-16-15, at 2,125 feet. Ramage and others have derrick up for No. 1 G. F. Murphy, Section 18-16-15. Roy and others have temporarily abandoned No. 1 Long, Section 28-16-14, at 1,960 feet.

Smitherman and McDonald are arranging to run core barrel at 2,580 feet in No. 3 Saxon, Section 5-16-16, now in hard sand. The Standard Oil Co. is arranging to bail casing at 2,015 feet in No. B-2 Saxon and has derrick up for No. C-1 Saxon, in Section 5-16-16. Stark and others are shut down at 610 feet in No. 1 Little, Section 21-16-12, awaiting fuel. Stock and others are rigging up to drill No. 1 Tufts, Section 7-17-14. The Sun Oil Co. is drilling at 880 feet in No. 5 Hays and at 995 feet in No. 6 Hays, Section 30-16-15.

Tarver and others are waiting on standard rig for No. 3 Saxon, Section 5-16-16, with 800 feet of oil in hole at 2,265 feet. The Texas Co. set 6¼-inch casing at 1,860 feet in No. 2 Guy Hays, Section 4-16-15. In Section 14-16-15 has No. 1 E. G. Murphy, standing 500 feet in oil at 1,995 feet and is waiting on standard rig and in Section 21-16-15 is waiting on standard rig for No. 1 F. G. Johnson at 1,990 feet. The Tidal Osage Oil Co. set 12½-inch casing at 60 feet in No. 1 Vestal, Section 17-16-15, formerly reported No. 1 Alphin.

The Vitek Oil Co. is bailing casing at 2,165 feet in No. 3 Allen, Section 18-17-14. Weatherbee and others tested dry with a show of oil and gas at 2,285 feet in No. 1 Holloway, Section 6-16-16, and are arranging to plug back after testing oil and salt water at 2,300 feet. In the same section they have derrick up for No. 1 O. A. Rice. Woodley and others are waiting on standard rig at 2,210 feet in No. 6 Van Hook, with 1,500 feet of oil in hole and are rigging up to drill No. 7 Van Hook in the same section.

Ouachita Area Completions

Three producers and one failure were reported in this territory last week, all the production located in the extreme northwestern area of the field. Hunt and others completed No. 1 Keller, Section 24-15-17, near the Pioneer States Oil Co.'s production, flowing 40 bbls. of oil at 2,285 feet.

In the older light oil territory the Smith Refining Co. brought in No. 1 Patton, Section 31-15-16, flowing 300 bbls. at 2,270 feet and the Sun Oil Co. put No. 3 Hardin on the beam with 75 bbls. production at 2,035 feet, Section 27-15-16.

The A. M. J. Oil Co. has abandoned No. 1 Graves at 2,273 feet, a wildcat test in Section 16-14-18, several miles north and west of production.

Drilling Operations

A few new wells started drilling and, taken as a whole, the outlook for this particular area is rather bright. There are a great many wildcat tests being drilled from 1 to 40 miles from the proven territory.

Bray-Hawthorne are drilling shale at 1,140 feet in their test on the Halford lease, Section 20-14-16, several miles north of production. The Gulf Refining Co. has set 8-inch casing at 2,000 feet in No. C-1 J. H. Dawson, Section 10-15-18, a number of miles west of production. Woods and associates have shut down their test in Section 2-12-18, several miles west and north of producing area, No. 1 Garnett. A number of other operators have temporarily shut down their wildcat tests for various reasons.

The newly opened territory to the extreme west of previous production is commanding most of the interest. In this area Clark, trustee, has set 8-inch casing at 1,840 feet in No. 2 Berry, Section 24-15-17. The Johnston Drilling Co. set 8-inch casing at 2,215 feet in No. 1 Wells, Section 25-15-17, and in the same section White and associates are waiting on standard rig to pump No. 1 Wells, at 2,308 feet, with 21 feet of sand. The American Trust Co. is drilling at 900 feet in No. 1 Patton, Section 31-15-16. Bashara and others set 12½-inch casing at 100 feet in No. 1 Patton, Section 32-15-16. In the same section the Magnolia Petroleum Co. is rigging up No. 1 Patton; Riggs Drilling Co. set liner at 2,265 feet to test No. 1 Myer estate; V. K. F. Drilling Co. set 12½-inch casing at 100 feet in No. 1 Patton.

The El Dorado Union Oil Co. has derricks up for Nos. 1 and 2 Solmson, Section 30-15-16. In the same section J. L. Hines is rigging up No. 1 fee; J. R. Smith is rigging up No. 1 LaGrone; Smith Refining Co. is down 1,850 feet in No. 2 Mynor estate; Solmson and others are drilling at 1,600 feet in No. 1 fee.

In Heavy Oil Territory

In the heavy oil territory the Arkansas Natural Gas Co. is bailing liner in No. 1 Snyder at 1,990 feet and set 6⅝-inch casing at 1,865 feet in No. 3 Snyder, Section 34-15-15. In the same section Murphy, trustee, set 12½-inch casing at 60 feet in No. 2 Snyder; Owenwood Oil Corp. set 6-inch casing at 1,860 feet in No. 1 Snyder. The Roxana Petroleum Corp. shut down No. 1 Snyder at 120 feet.

Bray-Hawthorne set 6-inch casing at 1,935 feet in No. 1 Hughes, Section 21-15-16. Jimmie Cox tested salt water at 1,965 feet in No. 2 Ferris Burton and is waiting orders, Section 30-15-17.

The El Dorado Union Oil Co. is drilling at 80 feet in No. 1 Smith, Section 36-15-17. The Forest Oil Co. is drilling at 1,750 feet in No. 1 Milner, Section 29-15-16 and has derrick up for No. 2. In the same section the Gulf Refining Co. is swabbing 1,400 feet of oil at 2,288 feet.

In the heavy oil territory the Houston Oil Co. is drilling at 1,100 feet in No. 1 Reynolds, Section 27-15-15. The Simms Oil Co. has derrick up for No. 3 Hildebrand, Section 28-15-15. The Standard

(Continued on Page 116)

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Burkburnett, Texas				

Pennsylvania-West Virginia

By D. S. Wakenight

But one 25-bbl. producer reported in the Eastern fields during the week, the remainder being light pumpers and gassers. New work mostly in the shallow sand districts, southeastern Ohio and West Virginia. October will probably show least results of any month in the year.

PITTSBURGH, Pa., Oct. 13.—Operators in the Eastern fields are not meeting with any better success than has accompanied their efforts for a number of months. October promises to be the least fruitful of new production of any of the current year. During the week only one 25-bbl. producer was completed in the Eastern fields. A score or more of completions resulted in only light pumpers, gas wells and dusters. Nearly all of the new work is confined to the shallow sand districts and West Virginia and southeastern Ohio.

West Virginia

For the first time in a great many months, Otter district, Braxton County, came to the front with better than a light pumper, the West Virginia Central Gas Co.'s No. 5 on the C. L. Engle farm and good for 25 bbls. a day in the salt sand. In Birch district, the Star Basin Oil Co. has a gasser in the salt sand at a second test on the W. A. Ramsey farm. In Sheridan district, Calhoun County, the Chemical Oil Co.'s No. 11 on the A. C. Fisher farm is a gasser in the Big Injun sand. In Murphy district, Ritchie County, Benjamin Beall & Co. completed a gasser in the Big Injun sand, a test on the W. H. Goff farm. The Carnegie Natural Gas Co. got a gasser in the Big Injun sand when it completed No. 5 on the S. S. Tharp farm. The same company's second test on the Lewis Garrison farm drilled through the fifth sand and dry, has been abandoned. In Grant district, J. E. Overton & Co.'s test on the Martin McTighe farm is a gasser in the Squaw sand. The Walnut Run Oil Co.'s No. 8 on the L. C. Watson farm, in Lafayette district, Pleasants County, is a 5-bbl. pumper in the Big Injun sand.

In Simpson district, Harrison County, the Northwestern Oil & Gas Co. has a salt sand gasser at a test on the Robert Harminson farm. In Washington district, Lincoln County, the White Sand Petroleum Co.'s No. 6 on the Reece Pauley farm is a gasser in the same formation. In Walton district, Roane County, Louis N. Davis got one of the same kind at No. 3 on the Robert N. Greene farm. In Center district, Gilmer County, the Chartiers Oil Co. got a salt sand gasser at its test on the Baptist Missionary Lot. In DeKalb district, the Hope Natural Gas Co.'s second test on the W. C. Gum farm is a gasser in the Big Injun sand. On Buckeye Fork of Cobb's Creek, Washington district, Lincoln County, A. C. Lawrence & Co.'s No. 7 on the R. Pauley farm is good for 3 bbls. a day in the Berea grit. The rig for No. 8 has been completed. In Courthouse district, Lewis county, the Hope Natural Gas Co.'s test on the Louisa John farm is a gasser in the fifth sand. In Clay district, Monongalia County, the Randall Gas Co. has now drilled its test on the Moore farm through the fifth sand. It is a gasser.

On Gillespie run, Grant district, Ritchie County, the Penn Royal Oil Co. drilled its second test on the I. N. Jackson farm through the Big Injun sand, a light gasser. In the same district, the Mason Oil & Gas Co. has a rig completed for a second test on the N. Mason farm. On Big Rock Camp run, Sardis district, Harrison County, the Hampton Oil & Gas Co. is starting a test on the Isaac Hannah farm. On Little Creek, Spencer district, Roane County, S. A. Simmons & Co., for a second test on the W. P. Poole farm. In Courthouse district, Harrison County, H. E. Duncan & Co. are building a rig for a test on the J. E. McDonald farm, 1,000 feet southwest of the South Penn Oil Co.'s test on the G. W. Rohrbaugh farm. In Grant district, Pleasants County, E. A. Ryan has a rig up on the T. C. Hammett farm. On Paw Paw Creek, Battelle district, Monongalia County, the Carnegie Natural Gas Co. has drilled a test on the A. F. Tennant farm through all sands, to a total depth of 3,170 feet. It is a light gasser in the Gordon and Fifth sand.

Drilling and Starting Tests

In New Milton district, Doddridge County, Trainer & Travis are rigging up at a test on the Paul Allen farm. The same parties failed to recover the tools stuck in their test on the F. J. Ross farm and have skidded the rig and starting a new hole. In the same district, the Hope Construction & Refining Co. is due in the sand on the W. H. H. Douglass farm. In Sardis district, Harrison County, J. W. Johnson is due in the Gordon Sand on the B. F. Bramer farm. The location for a test on the Frederick Swiger farm has been made. In Ten-Mile district, the Raccoon Oil Co. has a rig up on the George Harbert farm. In the same district, G. L. Cabot is building a rig on the M. W. Davis farm. Worthy Marsh has a rig up on the G. L. Hurst farm. In Union district, the Reserve Gas Co. is still fishing at 2,200 feet on the W. O. Sommerville farm. In Center district, Wetzel County, the Hope Construction & Refining Co. is due in the Gordon sand on the Susan Marshall farm. In Clay district, the same company is due in the sand on the James Murphy farm. In Glenville district, Gilmer County, the Carnegie Natural Gas Co. has a rig up on the Ida Hiney farm. In Troy district, E. C. McCall & Co. have started to drill on the Jackson Lipscomb farm. In West Union district, Doddridge County, the Eastern Petroleum Co. is fishing on the S. V. Smith. Steinbeck & Krause are due in the sand on the Inman Bailey farm in Freeman's Creek district, Lewis County. In the same district, the Jones Oil Co. is fishing on the J. W. Starcher farm. The Wiser Oil Co. is hauling rig timbers to a location on the Joab McIntyre farm in Grant district, Wetzel County. In Lafayette district, Pleasants County, the Horner Oil Co. is due in the Berea grit on the Marie Ryan farm. In Reedy district, Wirt County, the Pyramid Oil Co. is due in the sand on the A. T. & C. A. Carruthers farm. In Union district, Wood County, Ekas & Bowser are drilling on the Ethel & C. C. Davis farm. In Tygart district, Bickel & Son have placed a drilling machine at a location on the Bradley Beal farm. In Murphy district, Ritchie County, the Hope Natural Gas Co. is due in the N. E. Mitchell farm. In Union district, the same company has started to drill on the I. M. Harden farm. In Curry district Putnam County, the Laurel State Gas Co. is due on the George Dalton farm.

Southeast Ohio

In the southeast quarter of Section 16, Ripley Township, Holmes County, Ohio, the Medina Oil & Gas Co. has drilled a test on the J. T. Schantz farm through the Clinton sand, a gasser good for 1,500,000 feet a day. The location is 1½ miles west of the Pure Oil Co.'s test on the Isaac F. Snyder farm. One-half mile north of production in Madison Township, Columbiana County, the Natural Gas Co. of West Virginia has a 2-bbl. pumper in the Berea grit at a test on the Matilda Hupp farm. In Section 3, Green Township, Monroe County, Templeton & Co. drilled their test on the W. P. Thompson farm through the Keener sand and found it barren. It is a fair gas well in the Maxon sand. In Section 20, Madison Township, Perry County, the Atha Oil Co.'s No. 7 on the Melick Bros.' farm, is a duster in the Berea grit. The same company's No. 5, on the same farm, drilled through the Clinton sand and dry.

In Fallsbury Township, Licking County, the Arkansas Natural Gas Co. has started drilling on the Leota Miser farm. In Madison Township, Spindler & Donaldson are drilling on the C. E. Bounds farm. In Franklin Township, Ralph Bros. are drilling a second test on the Savilla C. Parr farm. The Allegheny Oil Co. is drilling on the James McDonald farm, located in Section 33, Pleasant Township, Perry County. North of the Montana Oil & Gas Co.'s No. 3, on the Levi Kennedy farm in Section 10, Brush Creek Township, Fairfield County, the Planet Oil Co. & Sturm have started to drill a test on the D. F. Householder farm. In Cass Township, Muskingum County, the Trinway Oil & Gas Co. is drilling a test on the Lloyd Fawcett farm. This location is in gas territory. In Section 13, Harrison Township, Knox County, Abrain & Weed are drilling for a Berea grit producer at a second test on the Elliott Schooler farm. In Washington Township, Monroe County, Harry Bingar & Co. are drilling on the M. E. Dye farm. In the same township, Torner & Co. are due in the sand on the Benjamin Piatt farm. In Newport Township, Washington County, B. F. Reynolds & Co. are due in the sand at a test on the Adam Haas farm. In Grandview township the Hope Oil & Gas Co.'s test on the Joseph Frymyre farm is drilling in the sand.

Light Pumpers

In the southwest quarter of Section 23, Washington Township, Hocking County, the Lane Oil & Gas Co. drilled through and shot in the Berea grit its test on the W. S. Lane farm. It is a light pumper, locate one-half mile west of production on the R. C. Brinner farm. In Section 6, Enoch Township, Noble County, C. V. Cain & Co. have a very light pumper in the Buell Run sand at No. 5 on the L. H. Devold farm. In Section 13, Center Township, Davis & Kemp have a light pumper in the same formation at No. 9 on the John McWilliams farm. In Section 28, Enoch Township, T. A. Weisent & Co. have drilled No. 3 on the E. A. Weisent farm through the Macksburg 500-foot sand and showing for a 2- or 3-bbl. pumper. The Central Oil Co. has the rig completed for a second test on the O. E. Romine farm, located in Section 23, Perry Township, Perry County. In the Reas Run district, Grandview Township, Washington County, E. E. Thornily & Co. have drilled No. 8 on the Jane Heckathorne farm through the Cow Run sand and dry. One-half mile west of production on the G. P. Stacy farm, in Section 33, Ward Township, Hocking County, Scott Westbrook & Co. have drilled a test on the G. P. Stacy farm through the Berea grit, a duster. In the same section, Sharren & Son have drilled No. 3 on the G. P. Stacy farm, into the Berea grit and developed a good gasser. They will case off the gas and drill to the Clinton sand. The same parties have started to drill No. 4 on the L. Coe farm. In Section 26, the Arkansas Natural Gas Co. has started to drill No. 3 on the Helm Clay Co.'s property. In the southwest quarter of Section 3, Washington Township, the Logan Gas Co. has completed and shot in the Clinton sand a test on the Sarah Nixon farm. It is a gasser good for 1,500,000 feet a day. In Section 16, Rush Creek Township, Fairfield County, the Blime Oil &

(Continued on Page 84)

News from Fields of Canada

By Victor Lauriston

CHATHAM, Ont., Oct. 13.—The latest official summary of Imperial Oil, Ltd., drilling operations in the Canadian West indicates that no new work is at present being started, though the unfinished tests in Alberta are being pushed to completion.

Detailed information is given as to the latest developments in the Far North, from which field the drilling crews were recently withdrawn for the winter. In this field, after the completion of the discovery well below Fort Norman, three new locations were made. The first, D location, on Bear Island, down the dip from the discovery well and one-half way across the river; the second, C camp, further down the dip on the opposite side of the river; and the third, at Blue Fish Creek, near Fort Norman. At C camp, after drilling to a depth of 1,700 feet, trouble was encountered with a crooked hole, the rig was skidded and a new start made.

At the close of this season's work, the discovery well had been deepened to 951 feet and was capable of producing between 60 and 70 bbls a day. At D location (Bear Island) a depth of 2,080 feet was reached, at which depth drilling was in the Beavertail limestone. There was a showing of oil at 1,948 feet and a further indication of oil and gas at 1,975 feet below which depth small quantities of salt water were encountered. At C location drilling was carried to a depth of 3,057 feet, in lime, and no favorable showings were encountered. At Blue Fish Creek, the well had reached 495 feet, at the close of last season, and owing to the lack of crews no further work was done this year.

Not to Be Abandoned

While the company's plans for further development in the Far North have not been fully formulated, it is definitely known that the field is not to be abandoned. It is understood that the company intends to send at least one crew to Fort Norman next year with a view to deepening the discovery well or sinking a fresh hole in the immediate vicinity. It is possible also that work will be resumed on the unfinished well at Blue Fish Creek, which is already down 495 feet.

In the company's Alberta drilling, Royalite Oil Co.'s No. 4, in the Okotoks Field, southwest of Calgary, on Section 7-20-2w5, is capable of producing 7,000,000 feet of gas per day from a depth of 2,890 feet. Drilling is being carried on for oil, and the depth of the well is

(Continued on Page 84)

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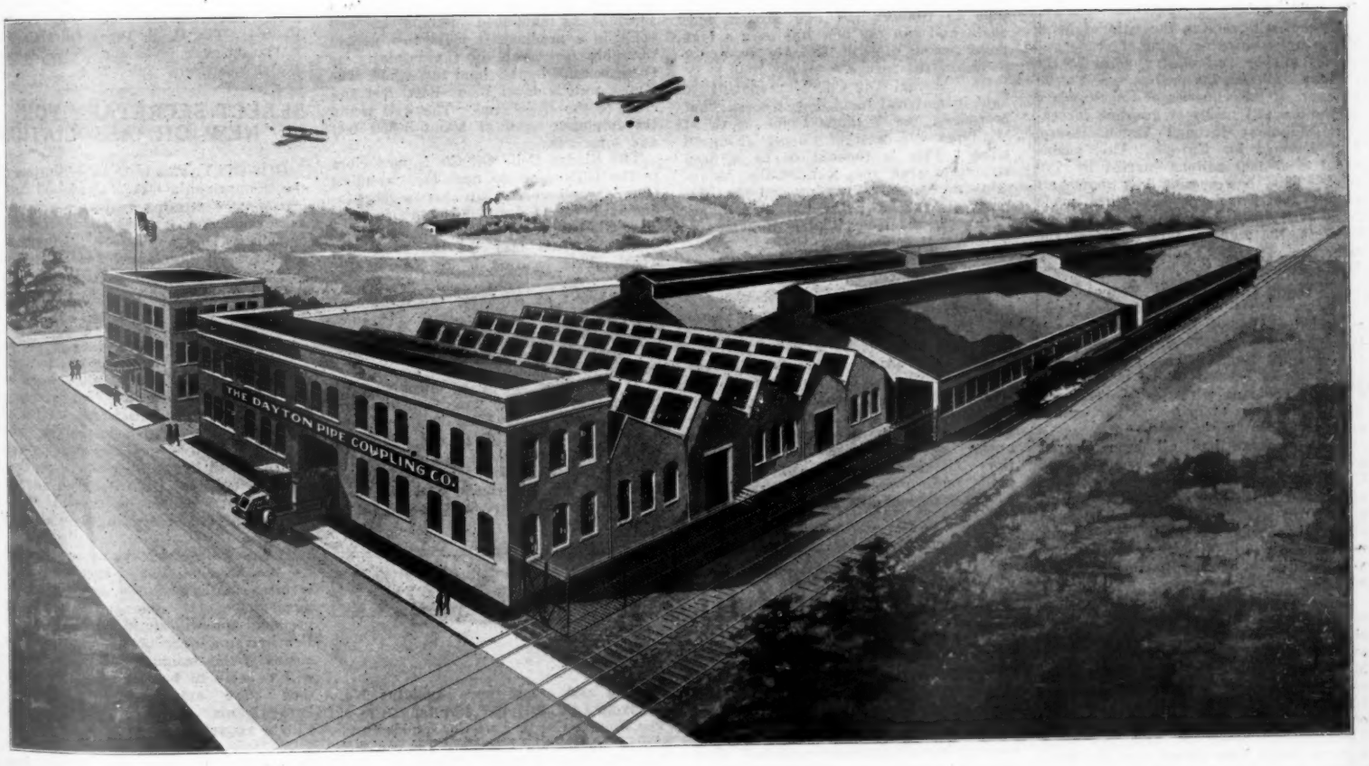

The DAYTON PIPE COUPLING Co.
Dayton, Ohio.

Wyoming Field Operations

By F. B. Taylor

Runs for week 85,130 bbls., low record following interruption of work caused by the floods. State receives $2,424,481 in royalties from the Federal Government. Mammoth denies cancellation of drilling on Teapot. Deep test on Wallace Dome. Gypsy testing 15,000 acres in Sunburst.

CASPER, Wyo., Oct. 15.—The sum of $2,424,481.56 was turned into the treasury of the State of Wyoming the past week as royalties due to the State from the Federal Government as Wyoming's share of the oil produced from Government lands there.

Of this sum the university and other schools of the State will receive the major portion, the sum of $1,210,303.61, the University of Wyoming will also receive $230,780.13 additional besides the prorata of the general fund for schools; then the counties where the oil is produced will receive the sum of $63,567.07 and the State Highway Department will receive $874,356.98. The Highway Department will also have the sum of $45,464.77 to spend on highways within the counties where the oil is produced.

This fund is divided into the separate divisions as follows: The Schools take 50 per cent of the whole, Highway Department takes 35 per cent, the University of Wyoming takes 10 per cent and the counties take 2 per cent.

Casper still retains the title of being the greatest shipping point of crude and refined oils by rail of any point in the country. During the past month, Casper sent out of its refineries of the Standard of Indiana, 13 trains of gasoline for export shipment through Baton Rouge, La., destined for Europe. This means about 8,000,000 gallons carried by 780 cars. This, however, is less than half of all the petroleum shipments made from here during the month of September from the different pipe lines and the refineries of the Standard and The Texas Co.

Work Continues at Teapot

It was officially stated at the Mammoth Oil Co. offices here that no cancellation of drilling wells was considered in the Teapot Dome. The work is expected to be carried on as usual there and the contract with the Government will be lived up to in all its particulars as it has been in the past.

The wreckage had all been cleared away at the Burlington wreck east of Casper, except the locomotive. The bodies of Charles Guenther, of Douglas, a well known oil operator here, and several others have not been found, though searchers are still exploring the vicinity and the banks of the Platte River for miles up and down stream.

Some of the old horse stages that formerly hauled tourists through Yellowstone Park are now carrying passengers over Birdseye Pass in the Big Horn Mountains to Shoshoni from Thermopolis or the other way to make connections between Central Wyoming and the end of travel on the Burlington railroad at Thermopolis. Since the floods last summer, no trains have passed over the Burlington from Casper to Thermopolis.

The Domino Woming Oil Co., operating in the Salt Creek Field, held its annual meeting at Casper the past week and the reports of the different officers showed the firm to be in excellent shape financially. Charles E. Winters was re-elected president; J. L. Baker, vice president, Quentin Deaver, treasurer and E. A. Winter, secretary and manager.

The E. T. Williams Oil Co. is mailing out checks for the dividend declared a few weeks ago at the annual meeting and this latter firm and the Domino Wyoming are two of the few oil firms outside the Standard companies that are paying dividends in spite of the cut in the crude market. The Wyokanda Oil Syndicate will hold its annual meeting on October 16 at Casper; it is another Salt Creek firm.

New Thermopolis Wildcat

The Murphy Syndicate is preparing to drill a well near Thermopolis in the Big Horn Basin country. This location for the new wildcat is about 4 miles northwest of Thermopolis and on a tract of 1,820 acres.

On Dry Creek about 14 miles from Greybull, the recent flood washed away a large part of a flat where the Illinois Pipe line from the Elk Basin Field to Greybull followed the street and broke the line. Considerable loss of oil was sustained as the company did not know of the break for several hours and the repairing of the break took both time and money as it required 75 joints of pipe to connect the two broken ends again and run the new line over a high point where it will be safe from the floods in the future.

The Mutual Oil Co. is preparing to haul in material for a deep test on what is termed the Wallace Dome south of Waltman and west of Casper about 40 miles. This is thought to be a deep structure near the Rattlesnake Mountains in Central Wyoming and the Mutual will put down the test in conjunction with the Consolidated Royalty interests that took up the area.

Test Near Kemmerer

The Beaver Oil Co., of Portland, Ore., is reported starting a wildcat about 3 miles east of Kemmerer in Lincoln County. This is in the southwest corner of the State and lies on a great Tertiary overthrust faulting that makes it very hard to determine the status of geology there. The Fossil and LaBarge operations produce a high grade oil from the Tertiary shales or else formations of the upper Cretaceous just under the Tertiary but the production, while of high grade, lacks quantity in the wells drilled to date, to make it a commercial success.

B. O. Hammond, manager of the Parkersburg Rig & Reel Co., crossed the Red Desert country the past week from Rawlins to Lander and had a close call in that desolate region. When he reached the high divide, he struck heavy snow fall and from that point he had to buck snow all the way. He left Rawlins Thursday and as the Riverton office of the Parkersburg Rig & Reel heard nothing of him by Sunday, a searching party left Riverton traveling south and picked up his trail at Hailey, a small postoffice near the head of the Sweetwater. When it was found he had passed the searchers by another trail and he was located later in Lander after bucking drifts for the last 50 miles. He was none the worse for the experience but the car required considerable repairing.

Montana

The Gypsy Oil Co.'s well in the Sunburst Field is attracting attention at present. This location is north of Shelby about 7 miles, in Section 22-33-2w, and is a test of about 15,000 acres of land south of the main field. Should this well come in a producer it will cause a mad scramble for tracts in that vicinity as there is considerable land to be had. The Gypsy well is down about 1,400 feet and close to the Ellis sand. The well found the Sunburst sand at about 1,350 feet and some gas.

The Gladys Belle Oil Co. is now close to the Ellis sand up near the Canadian boundary where the dip carries the producing horizons deep under the surface. The Gladys Belle is now down about 2,670 feet and may hit the sand this week. This location is on Section 19-37-4e.

Northwest of Sunburst town the two wells on what is termed the Blarney Castle Dome, are down around 2,600 feet and about ready to find the Ellis sand.

At Ethbridge, about 10 miles west of Shelby, the Buckner well is also down close to where the Ellis is thought to be, about 2,500 feet deep, and this wildcat is also expected in in a few days. On the east side of the main Sunburst Field the Skilton ranch well is down close to the Ellis sand and should be in soon.

Kansas Oil Field News

By Ralph T. Baker

After a short spurt in developing new production, Kansas oil fields subsided during the past week and few completions of importance were recorded. New operations made an additional slump reaching a new low point. For the week ended September 29, there were 27 locations, 45 rigs, 50 drilling wells and 99 wells shut down, making a total of 221 operations. A week later, there were 24 locations, 43 rigs, 47 wells drilling and 95 wells shut down, a total of 209 operations.

In Greenwood County Bacon and others' No. 1 Angora, NW cor. SE NW, Section 14-24-9, was drilling at 200 feet. Manson and others were spudding No. 2 Dixon, CEL SE SW, Section 18-28-9. The Empire Gas & Fuel Co. spudded and shut down in No. 7 Seeley, NE cor. SE NE, Section 5-23-11. Polhamus and others' No. 2 Brinker, SW cor. SE NE, Section 26-24-9, was shut down at 2,315 feet with a hole full of water after drilling sand from 2,175-77 feet.

In Sumner County Brady Bros.' No. 1 Turpin, SW cor. Section 13-33-2e, was fishing at 3,360 feet after getting the top of the lime at 3,280 feet.

The Webster Oil Co.'s No. 1 Speer, NW cor. NE, Section 17-29-12, Elk County, was drilling at 500 feet.

Olmstead and others' No. 1 Osborn, NW cor. Section 8-31-11, Chautauqua County, was drilling at 600 feet.

In Marion County Ben Lampl and others' No. 1 Anderson SW cor. NW SW, Section 2-20-3, was drilling at 600 feet.

Butler County

In Butler County the Oklahoma Producing & Refining Corp.'s No. 4 Maxwell, CNL NW SW, Section 31-24-4, made 10 bbls. after plugging back to sand at 2,690-2,718 feet. Neeley Bros.' No. 1 Gillespie, NW cor. Section 5-26-4, was dry at 2,790 feet. Moulter & Ray's No. 1 Eckel, NE cor. SW, Section 18-27-7, shut down after spudding. Hartman & Skaer's No. 4 Skaer, CNL NE SW, Section 24-27-4, was dry at 2,042 feet.

The Derby Oil Co.'s No. 1 Spencer, NW cor. NE, Section 7-24-2e, was running 5-inch pipe, after getting a hole full of water at 3,000 feet. Stark and others' No. 1 Ogden, NE cor. SW NE, Section 29-29-8 was plugging back to 1,900 feet after getting a hole full of water at 2,812 feet. The Oklahoma Producing & Refining Corp.'s No. 4 Maxwell, CNL NE SW, Section 31-24-4, was good for 8 bbls. of oil and some water after a 60-quart shot at 2,600-2,720 feet. Neely Bros.' No. 1 Tarry, NW cor. Section 5-26-4, was dry at 2,790 feet. Skaer and others' No. 2 Skaer, CWL E half E half SW, Section 24-27-4, was dry at 2,040 feet, after getting a show at 2,030 feet.

In Osborne County McKnight and others abandoned their location for No. 1 Warley, NW cor. Section 34-10-15w.

The Southwestern Petroleum Co. had a rig on the ground for No. 1 Allen, SE cor. SW NE, Section 18-32-6, Cowley County. The Twin State Oil Co. had a machine for No. 1 Hilbert, SE cor. NW, Section 6-32-5, and McNabb and others had a rig on the ground for No. 1 Lierman, NW cor. NE, Section 19-32-5. The S. & S. Oil Co. staked a location for No. 1 Newton, NE cor. SW NE, Section 15-30-4. The U. S. Texas Oil Co.'s No. 1 Harshberger, NE cor. NW, Section 5-30-5, was dry at 2,983 feet.

SELECT SECRETARY FOR NEW OIL ASSOCIATION

OIL CITY, Pa., Oct. 15.—Trustees of the Pennsylvania Grade Crude Oil Association at a meeting held here completed arrangements for the securing of a permanent secretary, selected Oil City as the place for the permanent headquarters of the organization and established $5 as the minimum membership fee in case of small producers.

Rodney Alexander, of Randolph, N. Y., was selected as the secretary of the organization. Mr. Alexander was formerly connected with the sales department of Phinny Brothers and has had experience in all the various departments of the oil industry. He is considered as very capable and well qualified for his new position both by training and experience. He will move to Oil City soon and assume charge of the permanent offices which will be located in the Chambers Building.

The insignia which the association will use has been practically agreed upon. It is intended that this be used by all the members of the organization on their products and will stand for 100 per cent Pennsylvania products. Through the means of this insignia the general public will be able to buy oil products which they know are made entirely from Pennsylvania crude oil. The insignia will be copyrighted.

The association leaders are anxious to have every producer, no matter how small his output of crude may be, as a member. It was decided that a $5 minimum membership fee would be necessary on account of the expenses which will be involved.

It was reported that a great deal of interest has been aroused in the new organization, that many producers and refiners have already joined and that inquiries concerning it are constantly coming into the local offices of the association.

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The E. T. Williams Oil Co. is mailing out checks for the dividend declared a

Section 14-24-9, was drilling at 200 feet

Olmstead and others' No. 1 Osborn,

ation.

West Kentucky-Tennessee

By Vern T. Whitney

E. M. Treat & Co.'s No. 1 Sam Riddle, Cumberland County, makes 200 bbls. in 13 hours, extending Bear Creek Field. Les Combest and associates' No. 2 A. A. Huddleston, Sulphur Creek section, estimated 100 bbls. No. 1 Adams, Warren County, 32 bbls., and Widow Ritchie well, Barren County 22 bbls.

BOWLING GREEN, Ky., Oct. 15.—The combined pipe line runs for the western Kentucky fields shows a decrease of 9,722.82 bbls. for September, with a total run of 110 407.96 bbls., an average daily production of 3,680.26 bbls.

Warren County runs totaled 58,545.99 bbls., a decrease of 6,395.47 bbls. when compared with August totals. Of this amount, the Indian Refining Co. handled 23,205.77 bbls.; Paragon Development Co., 28,286.39 bbls.; E. R. Riggs, 4,-655.40 bbls.; Swiss Pipe Line Co., approximately 1,500 bbls.; Park City Refining Co., 598.13 bbls.; and the Central Producing & Refining Co., 300.30 bbls. The total runs for the month in Allen County were 37,151.93 bbls., a decrease of 5,857.99 bbls. compared with August. Barren County's runs totaled 4,592.21 bbls. a loss of 809.31 bbls. Hancock-Ohio Counties showed a loss of 778.82 bbls. for September with a total run of 3,503.32 bbls. Simpson County's runs showed an increase of 154.92 bbls. with a total run of 2,650.66 bbls., while Cumberland County is credited with 2 358 bbls. for September. No oil was run in Cumberland during August on account of low water in the Cumberland River. In Hopkins County the Central Producing & Refining Co. run 1,605.39 bbls. during September.

Week's Work

The producing counties of western Kentucky shows a total of 21 completions for the week in review, with 9 oil wells, 3 gassers, 9 dry hole. Of these completions, Warren County has 3, 1 of which was an oil well and 2 gassers. Allen County has 2 producers and 2 dusters, Barren County had 2 producers, Hopkins County, 1, Cumberland County shows 3 producers and 2 dusters; Meade County, 1 gasser; while Hardin and Monroe Counties are credited with 1 dry hole each. Clay County, Tennessee, shows 3 dry ones. The total production of the 9 producing wells is 523 bbls., an increase of 170 bbls. over the previous week.

Cumberland-Monroe Completions

The most important completion of the week was No. 1 Sam Riddle, located on Julia Bow branch of Bear Creek, in Cumberland County, by E. M. Treat & Co. Shale was found at 344 feet, Pencil Cave from 938-940; pay, 1,019-1.032½ feet, the total depth. Sulphur water was encountered at 848 feet. The well was cased with 30 feet of 8¼, 326 feet of 6¼ and 968 feet of 4⅞-inch. When turned into tankage at 9 p. m., October 5, it pumped 120 bbls. naturally the first seven hours, and then started flowing 12 bbls. per hour. It put 200 bbls. in the tank the first 13 hours. This well extends the Bear Creek Pool 1½ miles to the southeast. The interesting feature of this completion is that it is the first well drilled on ridge land in Cumberland County and proves that the ridges contain oil as well as the valleys.

In the Judio Creek district, 12 miles southwest of Burkesville and 4 miles north of Kettle Creek, No. 2 J. B. Hume, of the Judio Development Co., on test, made 6 bbls. per hour. It was completed at 430 feet, in the pay below the Pencil Cave, where production was found in No. 1, which is still pumping approximately 90 bbls. Location has been made for No. 3. Operators ae watching this new pool with much interest and a large amount of acreage has changed hands.

In the Sulphur Creek Section, No. 2, A. A. Huddleston, of Les Combest and associates, was shot in the sand below the Pencil Cave at from 608 to 635 feet, with 40 quarts. It made six flows while running the shot and is estimated at 100 bbls. On another portion of the Huddleston farm, the three producers drilled by the Morris Petroleum Co. are holding up with great satisfaction.

At Cedar Creek, W. A. Henson got a duster in No. 1 Mary Anderson at 778 feet, 150 feet below the Pencil Cave. At Galloway Creek, 10 miles southwest of Burkesville, No. 1 L. C. Butler, of Williams & Richardson was declared dry at 850 feet, 100 feet below the Pencil Cave.

In the Kettle Creek Pool, Bushaw and others moved in a 60-H. P. compressor, with which 1,000 bbls. of salt water per hour is being removed from No. 1 Turn Smith. It is the belief it will eventually go back to making oil.

Local inhabitants thought the day of destruction had come, when gas was struck in No. 3 Arch Short, of the Powell Oil Co. on a branch of Kettle Creek in Clay County, Tennessee. At 115 feet the gas blew the tools out of the hole, high enough so the cable tied a half-square knot. Tools sank into soft ground, doing no damage except to the rig house, which was demolished. The gas pressure was so strong it upheaved hard lime in the creek branches several hundred feet from the well, probably due to crevices in the lime. Both Nos. 1 and 2 on this farm have been abandoned.

In the Willow Grove district of Clay County, Tennessee, No. 2 Marcum is dry at 633 feet. Casing was left in the hole and the rig moved to No. 3 location, 700 feet north of No. 1, which came in a month or so ago flowing 1,000 bbls. On the E. S. Dalton farm, 3 miles southwest of Celina, on the east side of the Cumberland River, Spain & Co. No. 2 was plugged and abandoned.

In Monroe County, the Louisville Gas & Electric Co. has abandoned No. 1 Chapman at 844 feet. This well was drilled too high on the structure. It was located near Gamaliel, 6 miles southwest of Tompkinsville. Rig was moved to the Ray farm, 3 miles south of Tompkinsville.

Warren County Development

The best well of the week in Warren County was No. 1 Adam, Adams' 16 acres, located in the new McLemore-Gillespie-Price Pool, southwest of Bowling Green. It made 32 bbls. at 1,166 feet. Shale was found from 1,112-1,102 feet. Two sands were encountered, the first from 1,113 to 1,121 feet, second from 1,158 to 1,166 feet. Flannigan and associates, owners of the property, have made locations for three more wells. One-half mile southwest from the above well, Reed and others got a large gasser at 65 feet below the shale in No. 1 Woodward 99 acres.

Three miles west of Woodburn, Roy Hogan got a good gas well at 700 feet in No. 1 J. W. Caldwell. No. 2 location has been made on the poor farm. The gas in this vicinity is being utilized by the town of Woodburn and nearby villages

Barren County came to the front this week with a 22-bbl. completion on the Widow Ritchie farm, being developed by Warder, Sampson & Baird, 2 miles south of Glasgow, in new territory. This well was completed at 582 feet and showed 14 feet of pay which was given a 40-quart shot. On the K. Nichols farm, Smith & Sons got a 4-bbl. pumper after shooting at 503 feet.

Hardin County News

No. 2 on the Russell 1,200-acre lease, near Elizabethtown, in Hardin County, is dry at 300 feet. No. 1, which reported an 8-bbl. pumper a few weeks ago at 160 feet, has gone to water and has also been abandoned.

Lewis J. Emery, Jr., & Sons have moved a rig into Hardin County for a test on a large block of acreage, 6 miles from Elizabethtown, near Coalberg, where they will immediately start development work. Geologists state this is likely-looking territory.

Allen County Completions

Very little interest is being shown in the Allen County fields at present and each week is showing a marked decrease for the past several months, as operators are storing their crude for higher prices.

The Gainesville Pool to the north of Scottsville furnished all the completions for the week, the best of which is the No. 9 Pearson, being operated by the West Penn Oil Syndicate. It came in making 12 bbls. at 353 feet. The first pay below the shale showed 10 feet in thickness and the second showed 12 feet, both of which were shot. On the T. Calvert property of F. A. Brendall, No. 12 made 7 bbls. at 356 feet. Shale was found 47 feet thick and the pay was found 20 feet below it. On the Gibson farm, T. A. Sheridan's No. 3 is dry, as was his F. Gibson No. 2 farm, No. 2 well.

In Hopkins County, the Cooper Flash Oil Co. completed its No. 3 Holliman for a 2-bbl. pumper in the shallow sand.

In Meade County, the Louisville Gas & Electric Co. got a gas well estimated at 5 000,000 feet in its No. 1 on the Tidall farm. It is located near Flarety and about 26 miles southwest of Louisville. The well was drilled to a total depth of 1,100 feet and plugged back to 800 feet where it was given a 20-quart shot.

News of Mexican Fields

By George Blardone

TAMPICO, Mex., Oct. 12.—The month of September saw some 53 wells completed (or indefinitely suspended) in Mexican fields, of which some 16 are producers. In the production column are eight completions in the Panuco Pool; five in the South Fields, while three are credited to Topila and miscellaneous. The production secured was 40,800 bbls. of which 22,400 bbls. can be credited to Panuco; some 17,000 bbls. to the South Fields, and 1,400 bbls. to Topila and miscellaneous. None of the pay completions belong to wildcat territory.

Recent Completions

In the Panuco Pool, La Corona Petroleum Co.'s No. 64 Salvasuchi is a completion at 1,820 feet, rated 200 bbls.; its No. 22, Lot 4 Cacalilao, is a dry hole at 1,965 feet; East Coast Oil Co.'s No. 8 Palangana is rated 100 bbls. at 2,350 feet. Talvez Oil Co.'s No. 5 Buena Vista is a failure at 2,235 feet.

In the South Fields, International Petroleum Co.'s No. 38 Toteco, is a duster at subsea level of 1,555 feet.

Cacalilao-Panuco

In the Cacalilao sector of the Panuco drilling operations for the past week were as follows: No. 41, Lot 4, rigging standard; No. 42, same, cemented 8-inch at 1,240 feet in the San Felipe; No. 29, Lot 1, drilling up junk at 2,070 feet in limestone; No. 31, same, drilling in gray lime at 1,485 feet, and No. 43, same, cemented 10-inch in shale at 800 feet. Credito Petroleum Co.'s No. 19, Lot 1, drilling in limestone at 2,240 feet. Mexican Gulf Oil Co.'s No. 33, Lot 1, drilling in brown shale at 1,390 feet. Its No. 35, same, drilling in a broken limestone at 950 feet, and No. 37, same, drilling in shale at 420 feet. International Petroleum Co.'s operations in Lot 5 follow: No. 24, drilling in gray lime with a showing at 1,608 feet; No. 26, drilling in brown lime at 2,435 feet; No. 27, drilling in gray shale at 760 feet, and No. 40 spudding.

Mexican Sinclair Petroleum Corp., operating in Lot 3, has made the following progress: No. 14 has cemented 10-inch in a lime shell at 1,155 feet; No. 27, drilling in limestone at 1,700 feet with a showing of oil; No. 28 rigged; No. 33, drilling in blue shale at 935 feet; No. 24, drilling in shale at 135 feet. Rich Mex Oil Co.'s operations in Lot 1, (4-B) are as follows: No. 3, drilling in shale at 850 feet; No. 16, drilling in shale at 110 feet; No. 22, drilling in limestone with a showing at 1,775 feet. In the 2-B fraction of Lot 1, Venable and others are drilling as follows: No. 5-A, drilling in shale at 1,475 feet; No. 2 has a fishing job on for tools at 2,000 feet, in lime, with a test making some 300 bbls. by heads. Transcontinental Petroleum Co.'s operations in Lot 4 are as follows: No. 27, drilling in limestone at 1,900 feet with the hole full; No. 31, drilling in shale at 930 feet; No. 32, a derrick; No. 33, drilling in the San Felipe at 1,200 feet; No. 34, running 8-inch at 1,400 feet in the San Felipe; No. 37, drilling in shale at 455 feet; Nos. 36 and 38 are derricks.

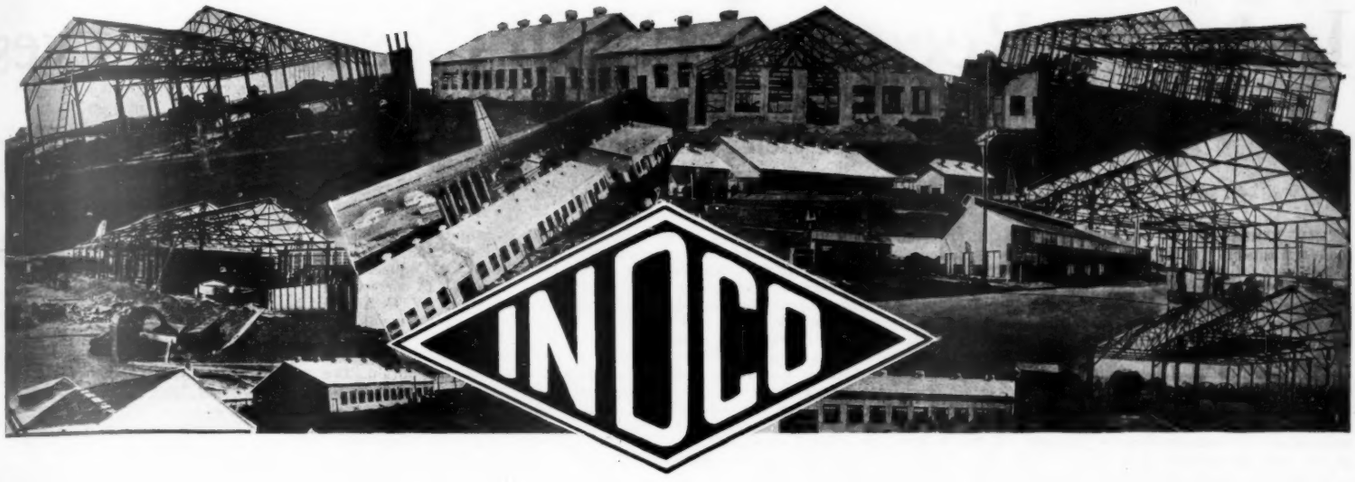
Panuco Old Sectors

In the older sectors of the Panuco Pool, operations are as follows: La Corona Petroleum Co.'s No. 66 Salvasuchi is drilling in gray limestone at 1,270 feet, and No. 72, same, rigging standard tools; East Coast Oil Co.'s No. 15 Los Potrerillos, drilling in gray shale at 530 feet; No. 429 Ingenio, cemented 8-inch in a broken limestone at 1,220 feet; Mexican Gulf Oil Co.'s No. 9 Lopez, has cemented 6-inch in limestone at 1,342 feet. International Petroleum Co.'s No. 6, Lot 5, Tanchicuin, has a bailer stuck in the hole at 2,680 feet; its No. 8, same, cemented 8-inch at 1,500 feet in shale. New England Fuel Oil Co.'s No. 5 Cruz, drilling in gray limestone at 1,718 feet, and No. 12 San Manuel, rigging. Vera Cruz Mexican Petroleum Co., No. 1, Lot 1, Buena Vista, is drilling in a hard lime at 1,450 feet. Transcontinental Petroleum Co.'s No. 3 Paciencia (north of Cacalilao) is drilling in shale at 385 feet.

In the South Fields

In the South Fields, Huasteca Petroleum Co.'s (Mexican Petroleum) No. 29-A Cerro Azul, is drilling in gray shale at 1,450 feet, and No. 34 same, drilling in the San Felipe at 1,808 feet in Tierra Blanca, Huasteca's No. 13-A is drilling in hard gray lime at 2,299 feet; No. 19-A, drilling in a similar formation at 2,134 feet; No. 20, same, drilling in gray shale at 1,935 feet. In Tres Hermanos, its No. 3-A is drilling in brown shale at 2,485 feet, and No. 6 has cemented 10-inch in

(Continued on Page 81)



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Industry Recovers From Case of Nerves

Distorted Report of Meeting of American Petroleum Institute a Sample of Propaganda Being Circulated for Ulterior Purposes.

By N. O. Fanning

NEW YORK, Oct. 15.—The petroleum industry appears to be recovering from a bad case of nerves. The word "appears" is used advisedly. A powerful clique of propagandists created the malady out of the air and took upon itself the work of effecting treatment. After several treatments, the industry, or that part of it which was prevailed upon to believe itself ill, now realizes that it was not seriously or permanently ill at all, and that the physician created the impression of sickness for the benefit of his own pocketbook.

It has been known for some time that powerful elements are working together to the detriment of the future of the American oil industry. It is not known just how far these elements extend, but they can be divided into three departments: (1) Those working for Government control of the oil industry for political purposes; (2) Those who have failed in the oil business and blame their failure on "the interests," and (3) Those who are working for a decline in the price of good oil stocks.

Mental Effect

It is hard to say which of these cliques does the most harm. The harm done, however, is mental rather than physical. The politician works for Governmental control of everything, and hopes to share in that control himself; the failure who blames it on others is blind to his own mistakes, and the stock market operator uses the other two in order to encourage the impression that the oil industry is in a bad way, when it isn't.

The American oil industry is too rich and powerful not to have enemies. It is important, however, that these enemies be confined to small cliques. With the support of the general public, the oil industry has nothing to fear.

Propagandists working to spread the impression that the American oil industry is under poor leadership, unfortunately have oil trade papers to spread their stories in. They also circulate so-called "inside information" which some gullible newspapers print. At the same time these propagandists play the stock market accordingly. Unhealthy conditions of certain companies are set up as examples of similar circumstances in the case of the strong and established concerns, and a few holders of good oil stocks are deceived into selling at low prices. They have no way of knowing who is buying their stock. Of course these propagandists do not work in such a way that their actions can be watched. But the course of the stock market is more than an indication; it is practical proof of their existence.

The report that J. E. O'Neil would resign, that his resignation was due to lack of harmony in the so-called Standard Oil family, and that his resignation would bring about a change in Prairie's price policy, was passed around the financial district the day before his resignation took effect. The persons who spread the report seemed to have reliable sources of information. But the justification of the report was used to indicate lack of cohesion between the different elements in the petroleum industry, poor leadership, and so on.

Shortly after this, events at a meeting of the American Petroleum Institute on September 24 were so garbled that it made the Standard Oil leaders appear to be in favor of the thing they have publicly decried throughout their business existence—Government control of the oil industry.

The facts of the case follow: W. C. Teagle was a member of the committee which proposed a resolution calling for cooperation between the industry and the U. S. Department of Commerce in the working out of a plan to correct the over production situation. W. C. Teagle himself did not propose the resolution. H. F. Sinclair, whose company is a partner of the Standard Oil Co. of Indiana, helped defeat the resolution. The foregoing was twisted into a disagreement between Standard and independent, etc., etc.

Tools of More Powerful Interests

If there are any so-called invisible "interests" working for the destruction of the petroleum industry, they are those who use such propaganda to fill their own pocketbooks. Bear stock operators do not want the destruction of the industry; on the contrary they are among those who believe in it. But they are not amiss to wanting others to believe that the oil industry is going downward instead of upward.

They not only use the propagandists but they capitalize the misfortune of small producers and refiners who have entered the oil business without any consideration of the ordinary principles of successful competition. This is what the Governor of South Dakota unintentionally accomplished when he cut the price of gasoline in the Middle West in half—or, rather, brought it about indirectly.

It is about time that the three cliques which have been mentioned went to cover and reversed their stand (as they always do.) A natural decline in crude oil production and the law of supply and demand will bring about an entirely new situation in the industry. With bright prospects, the bears will begin to take profits on the stocks they purchased at low prices; a new batch of persons will enter the oil business with their eyes shut. The certain politicians alone, perhaps, will continue their machinations, and will probably increase them.

These are the real interests which the constructive elements in the petroleum industry have to fight. All they ask is the help of the public and the constructive elements in politics which help will assure the prosperity of the country's greatest industry.

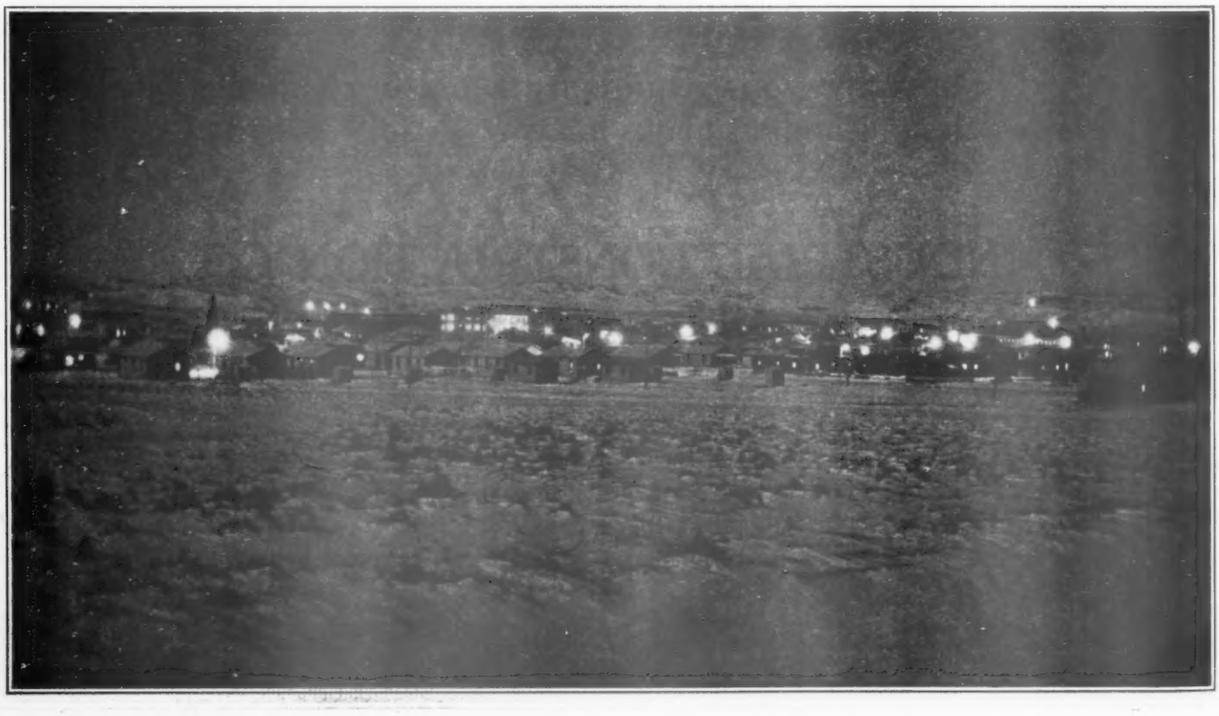
SURRENDERING LEASES

HOUSTON, Tex., Oct. 15.—Practically all the major companies are surrendering leases located outside of developed territory and which require immediate drilling. In many cases these leases have been carried for two and three years on a rental basis and are now being surrendered to the land owners, rather than pay another year's rental. The Atlantic Oil Producing Co. has surrendered 40 acres at Damon Mound and The Texas, Gulf and Humble Oil & Refining Co. have done the same at other places.

REFUGIO CARBON PETITION

AUSTIN, Tex., Oct. 15.—The Pratt-Hewitt Syndicate has filed an amended petition with the Railroad Commission to manufacture carbon black from a gas well in Refugio County. The former petition asked to use waste gas from one well. As now written, it asks for this privilege on all gas from the well. The first was opposed by San Antonio business interests but favored by citizens of Refugio County. If granted, the concern contemplates building a plant costing about $250,000.

SALT CREEK, IN HEART OF WYOMING DESERT COUNTRY, AS IT APPEARS AT NIGHT



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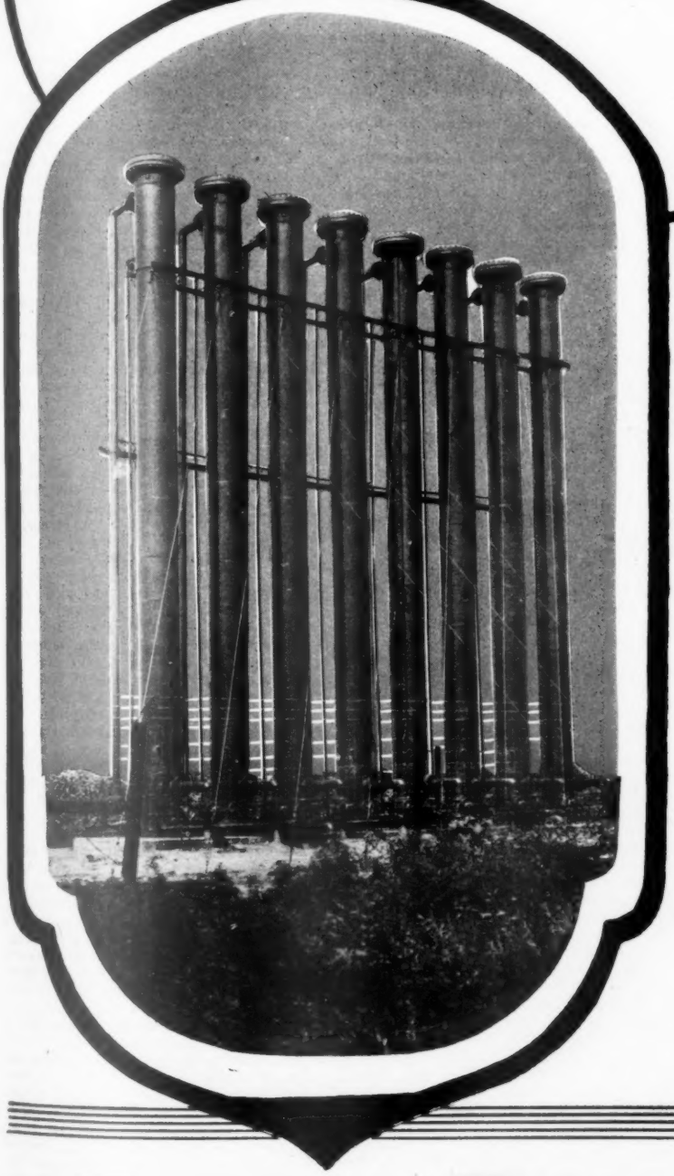

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History of the Mid-Continent Oil Field

Exhibit at Exposition of Casing From Neodesha Well Invokes Recollections of Famous Figures in Pioneering Days.

By Thomas M. Galey

Among the exhibits at the International Petroleum Exposition was a section of 4½-inch casing taken from the old Norman No. 1 well, located on the east side of the city of Neodesha, Kans., and on the west bank of the Verdigris River, about 200 feet north of the bridge. It was donated by the Prairie Oil & Gas Co., a joint going to the Petroleum Exposition in Tulsa and a section to the Drake Memorial Museum at Titusville.

This well was the first commercial oil producer in the Mid-Continent Field and its discovery led to the formation of the Standard Oil Co. of Kansas and the Prairie Oil & Gas Co. It was discovered in 1892, and shot on October 4, 1893, from 805 to 817 feet with 30 quarts of nitro glycerin made by George Perry and brought by him in a spring wagon from Webb City, Mo. The initial production was about 12 barrels.

The casing used was 434 feet of 5⅝-inch and 667 feet of 4½-inch. It was purchased from the Oil Well Supply Co. in Pittsburgh in 1891 and was first shipped to Osawatomie, Kans., together with a string of drilling tools by Major W. M. Mills, who was prospecting for gas. It is of wrought iron, with a 3-inch weld and of fine quality. It was probably made by the Reading Iron Works at Reading, Pa. The well was abandoned by its owner, the Prairie Oil & Gas Co., in 1917 when water broke into the lower joints.

First Well in Kansas

The first well in the State of Kansas was drilled in 1860 near Paola, Kans., with unimportant results. The first gas well was drilled just east of Paola by John Werner, July 25, 1882. The first oil well was drilled west of the town in 1888, depth about 360 feet. A 25-barrel refinery was built in the early nineties and some journal oil lubricants were sold to the Missouri Pacific Railroad, but the success of the venture was of no importance. The company continued a few years and went bankrupt and after five years more was taken over by the Standard Oil Co. of Kansas and dismantled. A barren well was drilled 2,000 feet at Paola in these early days, also another at Howard, Kans., and another at Atoka, Okla. There were a dozen or more shallow gas wells at Paola and several small oil wells. Gas developments spread to Cherryvale, Osawatomie, Coffeyville and Independence.

Major W. M. Mills, who still lives at Osawatomie, had had indifferent success in his gas operations at Paola and elsewhere when he came to visit friends in Neodesha. Citizens of that town had made an effort to get together to test for a gas supply but without doing anything. Mr. Mills proposed to drill a well himself, but was unable to get the 5,000 acres he demanded until Dr. Thomas Blakeslee and other business men gave their aid and secured the leases on a 10-cent rental basis and including all the minerals.

Rumors of Oil

Major Mills secured the services of McBride & Bloom of Independence, Kans. who had been successful drillers for gas and water and the well was contracted at $2.50 per foot. The 40-foot standard derrick was erected on the four acres of the T. J. Norman land and in a few weeks operations ceased, the report being circulated that a small amount of gas had been found. Barton Blakeslee, then a boy, was warned away from the well. He suspected something and hid in the bushes and at the time of drilling in saw the operators covering up signs of oil. He was much excited but kept silence upon his father's advice. Several days later much curiosity was aroused by a tool box in the freight station consigned to Ottawa, for it contained two kegs of liquid.

Major Mills then completed another well a mile west during the winter and secured a producer, and as the disocvery was pretty much an object of gossip, he frankly admitted it. The Major was unable to pay the contractors satisfactorily, and, after trying in vain to interest Eastern capital, finally brought out John H. Galey of the firm of Guffey & Galey, of Pittsburgh, Pa. This was early in 1893. Mr. Galey promptly took Major Mills into partnership and he shot the first well and put it to pumping. Active operations were begun on a great scale and after a few months Guffey & Galey bought out the interest of Major Mills for $4,400 and he returned to Osawatomie to develop his gas business at that place, Paola and Spring Hill.

Guffey & Galey Begin

During 1893-1894 Guffey & Galey leased over a million and a half acres extending from the Indian Territory line in a northeast direction to the Missouri State line. In 1893 15 wells were drilled and from that time to 1895 when Guffey & Galey sold out to the Forest Oil Co., 68 wells were drilled in the immediate vicinity of Neodesha, and 40 or more wildcat wells were drilled throughout their huge acreage. Some of these wells opened important pools, now in old age. The oil developments by others began to spread here and there and pushed well down into Oklahoma under very discouraging conditions.

The earliest movement in Oklahoma occurred at Chelsea in 1886. Edward Byrd found there enough evidence of oil to interest several Eastern men who incorporated a company under the laws of Kansas and in 1891 drilled 11 wells, depth 325 feet. No realization could be made on the investment and finally the property changed hands, becoming the famous "Big Lease" of the Cherokee Oil & Gas Co. In 1896 the Curtiss law became operative, which upset the plans of all Oklahoma operators. It was in 1893 that Michael Cudahy, the meat packer, obtained a blanket lease on 200,000 acres in the vicinity of the present city of Bartlesville. The Curtiss law cut him down to 640 acres with one well. Such were the difficulties in those days.

Pioneering Before Norman

Hence, like the Drake well, the existence of oil was known in the Mid-Continent for several years previous to the Norman discovery well. It was early in the century, preceding the Drake well, that a big well was discovered near the Cumberland River in southern Kentucky during operations for salt.

The activities of Guffey & Galey convinced the Standard that the time for their entry had come. It is surprising the large number of wells which were drilled in the pioneering effort before the Norman well was discovered. By the close of 1895 Guffey & Galey found themselves with over 100 wells, 150,000 barrels of oil in storage, a huge acreage and inability to sell a barrel because of adverse freight rates which were controlled in New York City. They had nearly $400,000 invested and were heartily sick of it. Going to New York the matter was laid before John D. Archbold and Henry M. Flagler. Their Forest Oil Co. took over the property on October 30, 1895, for $150,000 cash to the great relief of Guffey & Galey whose pioneering effort had cost them heavy loss.

The Forest Oil Co. promptly put 15 drilling rigs to work, taking over most of the men of the old organization, and prosecuted operations with vigor so that by July 1897 they had production in seven counties, with 224 wells, including 109 dry holes.

Organization of the Prairie

The Prairie Oil & Gas Co. was then organized to take over these Western holdings of the Forest Oil Co., which it did on January 1, 1901. Included in this was a large acreage which had been leased by W. L. Mellon, of Pittsburgh, then a young man, now chairman of the board of the Gulf Oil Corporation. Operations up to that time were of a decidedly experimental character. Independent operators had succeeded in developing only small quantities of oil in remote sections, but they desired the Prairie to buy it. To accommodate a few of the heavier producers, tank cars were provided and storage tanks erected at Neodesha where a small pipe line system had been inaugurated. In 1903 operations, around Chanute, Humbolt and in Montgomery County, had grown to sufficient magnitude to induce the Prairie to extend its local lines to connect these fields and so on August 1, 1903, they began the systematic registering and publication of runs and shipments.

To care for this oil, in 1895, the Standard Oil Co. organized the Standard Oil Co. of Kansas as its Western refining division and in 1897 built a small refinery at Neodesha, having a capacity of 500 barrels per day. In 1901 four more stills were added and increases have continued ever since that time.

Pipe Lines and Storage

Realizing early that the inauguration of a broad system of pipe lines and storage facilities would immediately stimulate development of the Mid-Continent Field, the Prairie promptly began an elaborate extension of all its facilities, including the erection of 123 tanks at Neodesha, about $35,000,000 being invested in a few short years. Meantime, the industry grew rapidly, but the Prairie was able to keep pace with developments which ranged far south into Oklahoma. The biggest event was when connection was made with the Eastern Pipe Line System and Oklahoma oil became a factor in the competition with Eastern oil. In 1903 the great rush came when Eastern operators were attracted westward by the discovery of the sensational greatest gusher at Beaumont, Texas, which was instituted by Captain Lucas and drilled and completed by Guffey & Galey. This completion led to the formation of the Gulf Oil Corporation by the Mellon interests when they bought out the interest of John M. Galey for about $700,000. As usual, this discovery was preceded by the discovery of shallow production at Corsicana, Texas, which was instituted by citizens of Corsicana and taken over and developed by Guffey & Galey for a half interest and was the first commercial production in Texas. These wells flowed their production for years from a shallow depth.

Swamped With Oil

Eastern oil men flocked into the Mid-Continent and the Prairie soon found its facilities swamped with oil and the producers with low crude prices. This condition of excess supply or undersupply has continued to this day, history repeating itself with unfailing regularity.

The history of the early development of the Mid-Continent Field is a history of the Prairie Oil & Gas Co. and it is hoped soon that history will be written while some of the principals are still living.

The major epoch making discoveries of oil in the United States are as follows:

1859, at Titusville, Pa., Col. Edwin Drake.

1866, at Ventura County, California, A. J. Salisbury.

1892, at Neodesha, Kans., Major W. M. Mills.

The only living discoverer is Major W. M. Mills of Osawatomie, Kans., who is one of the last of the old pioneers. He was born in Clarion County, Pennsylvania, in 1851. The great decline in the price of Eastern oil in 1884 caused him to come West seeking new fields and he had a hard struggle but won out.

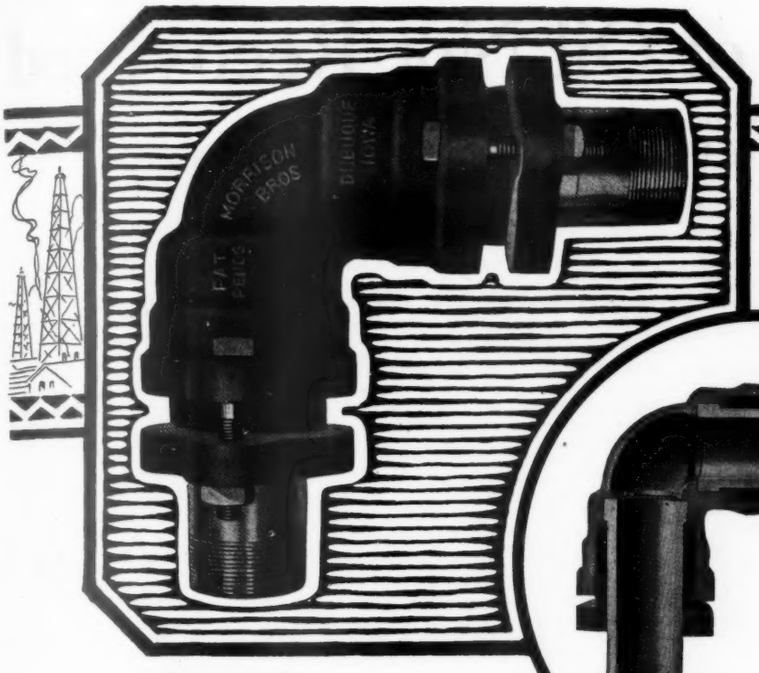
Col. J. M. Guffey still lives at an advanced age in Pittsburgh, Pa., where he still maintains an office and has a fine home on Fifth Avenue. In the early days when politics was a big factor in business, he was a power in the Democratic party until he finally locked horns with Bryan and dropped out of the arena. He was gifted with financial ability and his alliance with John H. Galey, under the firm name of Guffey & Galey, made a strong team.

John H. Galey was born in Clarion County, Pennsylvania in 1841 and died in Joplin, Mo., April 12, 1918, at the age of 77. He entered the oil business in the early development at Parker's Landing and, by his boldness, hard work and pioneering effort, he later made the firm of Guffey & Galey known wherever oil was produced. He located and drilled the first high grade oil gusher, the famous Mathews well at McDonald, Pa. This well made a world's record of production, having been exceeded by very few high grade wells since. This discovery was preceded by years of strenuous effort in Pennsylvania in a buckboard with a team of horses. His greatest discovery was the famous Lucas Gusher at Beaumont, which well made the record output of any well in the world to that date. He was a pioneer in the fields of West Virginia, eastern and western Ohio, Illinois, Kansas, Oklahoma, California and Texas. He was one of the first men to observe the anticlinal theory of oil and gas accumulation when he observed, in the Murraysville Gas Field, that where the Pittsburgh coal lay high the gas volume was greatest.

Story of "Salted" Well

This observation led to his revealing his discovery to I. C. White of the West Virginia Geological Survey, who mapped for Guffey & Galey the axis of the major folds in West Virginia in an attempt to develop a large gas supply for the Westinghouse Co. at the instance of George Westinghouse. Doctor White later wrote the first practical description of the anticlinal theory of oil and gas accumulation.

Among odd wells Mr. Galey drilled might be mentioned the first in the Coalinga Field in California. He drilled one near Washington, D. C. he was reluctant to mention. A promoter salted a well near that city and when the bailer brought brought up oil, Guffey & Galey took over the property and drilled another hole. They found out too late that the discovery well had been salted. He once drilled a deep well a few miles north of Salt Lake City, Utah, which showed a little gas. He drilled a number of shallow holes at Seven Lakes, New Mexico, which showed a little free oil on fresh water. He was too far along in years to become a factor in the Louisiana development but for years he maintained that some day big production would be found in southern Arkansas, such was his instinct. Like many pioneers he died without a large estate, but his name will carry on with that of Theodore Barnsdall and many others who did the big business of the early pioneers.



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"OIL EQUIPMENT HEADQUARTERS"

Eighty Per Cent of Oil Not Recovered

Need of Research Urged to Decrease Operating Costs and to Secure Vastly Greater Results in Pursuit of Petroleum.

By K. C. Heald
Of the National Research Council and U. S. Geological Survey, Washington, D. C.

Oil producers, refiners and marketers all have an interest in petroleum geology for each depends for prosperity on the welfare of the other two. Considering oil geology solely as an investment, they want it to show a profit. Indeed, the producer will probably tell us that unless geology shows him a profit he will have none of it. He is the man who has to foot the bills for geologic failures, and who has profited most directly from geologic successes. Of course he is interested in making oil geology pay, and most large operators have had concrete evidence that good geology does pay, although a few may still maintain that the only people whom it pays are the geologists who collect the fees and the drillers who earn wages while establishing records for deep drilling, for unfortunately there are still those who have not learned it is as disastrous to hire a poor geologist as it is to call in a horse doctor to treat acute appendicitis. In either case the patient may recover but it won't be the doctor's fault.

Refiners and Marketers, Too

The refiners and marketers do not have such a direct contact with geology. They do not hire geologists and get neither the thrill that comes with the birth of a new oil field, nor the pangs of burying their hopes deep in a dry hole. Nevertheless they should every one be supporting geological work of a type which I shall mention, for their prosperity to be solidly established and continuing must be based upon the prosperity of the producer. If the operator can reduce his operating costs he can sell his product more cheaply. If the refiners and marketers can cut the prices of their products and still make a profit, they can build up consumption to almost any point they will. He who doubts it can with profit study the history of the Ford Motor Co. The refiners and marketers should urge and support any research that may reduce the cost of supplying them with the raw material which they must have if they are to continue in business, just as the canners of the United States have joined themselves together to conduct research on agricultural problems affecting crops for canning; the National Macaroni Marketers Association has adopted as a part of its research program a study of wheat to learn what wheat is best suited for the manufacture of their product and where the farmers can secure the best seed wheat; and the Southern Pine Association has put thousands of dollars in the hands of State and Government organizations to investigate and stimulate the reforesting of lands in southern States.

Decrease Operating Costs

What does oil geology lack? How can it do more than it has done to decrease operating costs? Why is not the present development of the science satisfactory? I assume that in the oil industry, which has been noted for its rapid growth, there are almost no reactionaries, and that I therefore do not have to argue the general principle that no branch of the industry has achieved its maximum efficiency. That sterling statesman, Andrew Gump would get almost 100 per cent agreement from oil men when he proclaimed his slogan that "ox cart methods will not carry you far in an age of aviation" and that it is plain the man who said "old things are best," never tried to sell eggs. We must progress in all branches of the petroleum industry, but progress in petroleum geology is particularly vital. If no improvements were made in methods of refining and marketing it would undoubtedly be a calamity, but the industry would carry on. But cut off the supply of crude and the distress of the refiner and the marketer will be just as acute as that of the producer.

It may seem that undue emphasis is being laid on the value of geology to the industry, or that its present stage of development is more satisfactory than my statements would indicate. I would not intimate that geology has been standing still for the past 30 years, nor disparage the work of my colleagues in petroleum geology. On the contrary I am proud of that work.

Need of Research

The present flood of oil from fields discovered by following the recommendations of geologists, furnishes proof all too abundant that the geologist knows a good deal about hunting oil. On the other hand, however, there is abundant and expensive proof that the geologist needs better facts to work with, that he is far from the point of effectiveness he must reach, and that the possible saving to the industry is so great that it can not be overlooked or slightingly passed by.

It has been pointed out that in 1909 we produced 588 barrels of oil for each motor vehicle, while last year we had 12,000,000 motor vehicles and only 45 barrels of crude to each one. In other words we have learned to make one barrel of oil meet demands that a few years ago consumed many barrels. This has been done by learning to obtain more of certain essential products from the oil, and to improvement in methods of fuel consumption. Has there been an equivalent saving in the cost of exploring for oil? Has the percentage of dry holes diminished in proportion? Have those who hunt for oil advanced as rapidly in knowledge as the refiners and the automotive engineers? Last year there were more than 5,400 dry holes drilled in the United States, and it has been estimated that the loss to oil companies in the State of Texas alone from this single cause exceeded $15,000,000. And this loss is merely the actual cost of drilling. The actual loss is many times that, for when a wildcat well is abandoned at too shallow a depth, and fails to discover an oil pool that deeper drilling would have tapped, the loss due to the unfortunate abandonment of this single well may run into millions.

And there is no more doubt that oil geology can be developed to a point where it can save many of these losses than there is that we can talk from New York to San Francisco by radio, that the brain of man has devised machines which, although heavier than air can fly from one coast to the other without stopping, or that science has made possible the floating of the ZR-1 with a gas that will neither burn nor explode.

Get but 20 per cent of Oil

After a new oil pool is discovered it is drilled up, and as the edges of the pool are approached in this process, more dry holes are added to those that result from wildcatting. If there is gas pressure the wells flow for a while. Then they are pumped, with production stimulated by all means now understood. Finally the wells and the field are abandoned as dry. And when the field is thus abandoned, the operator leaves behind him in the sand from 80 to 90 per cent of the oil. In one Wyoming Field there can be no doubt that at least 175,000,000 barrels of oil, and probably twice that amount are present in the oil sands, but it is believed that present methods of extraction will obtain less than 7,000,000 barrels, leaving behind 168,000,000 barrels or more. In view of this enormous loss it is safe to predict that in the future the average extraction will be at least doubled. In the past this loss has not greatly disturbed the operators, and the refiners and marketers not at all, for few realized what a tiny part of all the oil in a pool was being extracted by wells, and one who is unconscious may bleed to death without being in the least concerned. But now that this present inability to extract more than a pitiful fraction of the oil is realized, it is inconceivable that means will not be devised to take from the ground much of this oil that so stubbornly clings to the rock, for no strong and hungry man will meekly and unquestioningly surrender a heaped and savory dish when he has had but a single mouthful. Extraction from pools after they have reached a stage that, under present methods, would mean abandonment will particularly help the industry, for it will permit old properties to compete on better terms with properties that have the advantage of flush production.

To Obtain More Oil

The mechanical problems that will arise must be worked out by the engineer, but first the texture and the porosity of the sands must be studied and the control they exert over both extraction and total oil content must be determined. This is work for the geologist, the physicist, and the chemist. It will mean both more oil from old properties and economy of operation. The oil industry, when it starts work to achieve these ends will follow the road blazed by many other cooperative bodies that are carrying on work designed to assure them raw materials and decrease operating costs. For example the National Board of Fire Underwriters has found that it paid to build a laboratory at a cost of more than $225,000 in which they could determine the causes of fires and how to prevent them. The Tanners Council of the United States has never regretted starting research work on tanning processes and the substances that are vital to their industry. The returns research have paid to the American Research of Meat Packers are known throughout the world. These researches are supported by hard-headed business men who want a dollar's worth for a dollar spent, and who are realizing their desire. They are successful. But none of the lines of research carried on by these other industries seem to offer the possibilities that is in a study of oil sands and methods of taking oil from them—a possibility of doubling output without equivalent increase in costs.

More Accurate Estimates

There is no apparent reason why the study of porosity and textures of oil sands, combined with figures of extent and thickness of oil sands, will not permit making estimates of recoverable oil in leases and pools that will be far more accurate than those made by present methods. The advantage coal and iron operators have held in their ability to determine in advance just what tonnage they might expect from their properties has often been remarked. Present methods of making estimates do not give the same advantage to oil operators. One well known and competent geologist in discussing the Huntington Beach Field of California said that he "made an appraisal of the Huntington Beach Field in December, 1921, and, bearing in mind the possibility of lower horizons which at that time had not been penetrated, rendered an estimate which has since proved to be at least 100 per cent too low." Reserves of oil may never be determined with the same accuracy as those of coal and iron, but the man who maintains the present methods cannot be replaced by others much more valuable and satisfactory would, 50 years ago, have heard arguing that steel would never take the place of wood for ship building, and that the pony express was the last word in fast mail service.

There is abundant experience, both in the oil industry and in other industries, to show that it is not desirable nor reasonable to place the responsibility of developing geology so that it will meet the needs of the petroleum industry on the geologic staffs of individual oil companies. Even if the companies allowed their men the time and supplied them with the needful equipment, such action would not be economical. It is a sad waste to hire a number of men of approximately the same ability to learn the same truth in the same way at the same time, when one of these men could be learning it for all the interested parties and the others might be determining facts of equal importance.

Cooperative Studies

This is one of the reasons why the American Institute of Meat Packers organized to carry on cooperative research studies. It has also been demonstrated that there is a strong tendency on the part of individual plants to limit the work of their geologists to activities that promise a quick return, whereas there is general agreement among those who have had charge of elaborate and profitable research work that "fundamental research rarely, if ever, returns a quick profit, but it may easily prepare the way for great wealth." Furthermore, if the development of petroleum geology is left to individual companies, small operators without the financial ability to conduct independent research work will be at a great disadvantage, which will, in turn, mean loss to the industry as a whole. Finally, and perhaps most important, best results can only be obtained by carefully picked men. Frank B. Jewett, chief engineer of the Western Electric Co. points out that the mere getting together of a group of men does not bring a research laboratory into being" and that "the mere dubbing of a man by some research title does not make him any more a real research investigator than sewing a pair of wings on a tunic makes a man a military aviator.

The Division of Geology and Geography of the National Research Council has observed the results achieved by cooperative attack on the common problems of an industry by such bodies as the California Fruit Growers Association, the Magnesia Association of America, the American Gas Association, the Portland Cement Manufacturers, and many others; has observed the absence of similar work dealing with that on which the petroleum industry is most dependent—the supply of crude—and the need for and possibilities of work on certain phases of petroleum geology were strikingly ap-

(Continued on Page 82)

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but progress in petroleum geology is par- him in the sand from 80 to 90 per cent ods of making estimates do not give the

(Continued on Page 82)

Control of Crude Production Sought

Mid-Continent Purchasers May Revise Their System of Operations and Subject to Come Before American Petroleum Institute

By N. O. Fanning
Room 525 No. 30 Church St., New York

NEW YORK, Oct. 15.—It is believed that the committee which the American Petroleum Institute formed to devise means for controlling crude oil production, is chiefly concerned with the task of organizing an economical system of gathering, storing and marketing Mid-Continent crude oil.

It has long been recognized by the heads of Eastern refining companies that a change in the present system has been needed. In fact the purchasing companies operating in the Mid-Continent Field now recognize that price readjustments alone will not enable the Mid-Continent producers to dispose of their output in competition with the flush fields of Mexico, California and Wyoming.

For many years Mid-Continent operators have consoled themselves with the thought that these flush fields would soon give out, and force the refiners back into their market. During the last two months practically the entire leadership in the petroleum industry has become convinced that if any relief is to come to the Mid-Continent, it must originate in that territory. Hopes that California production would take a sudden downward trend have, in this period, proved unfounded, and it is believed not improbable than when California does decline, some other field will appear to occupy the same place it does in the scheme of things.

In both Mexico and California, refiners have been able to buy their crude direct from the producers. In the majority of instances they have constructed their own pipe lines, terminal and storage facilities. Their own tank steamers have carried the crude to their seaboard refineries.

That the present system of handling the bulk of the Mid-Continent crude is uneconomic in view of the existence of flush fields like those in California is indicated by the fact that while the big Atlantic Coast refineries have cut down their purchases of crude from the purchasing companies, they have continued to take Mid-Continent crude, which their own subsidiaries produced, and which could be transported in their own pipe lines to Gulf Coast points and thence carried in their own tankers to their refineries.

Not Common Carriers

In California the oil companies owning pipe lines are not classed as common carriers. Refiners wishing to purchase crude in the flush fields of southern California, not previously owning pipe lines, have had to build them in order to get any oil at all, as they could not get any of the pipe line companies to carry their crude for them. This is the statement of one of the larger refineries that has gone into these fields.

Although California pipe lines were some time ago declared by law to be common carriers, the law is understood to have been disputed, and the case is still pending in the courts. Meanwhile, the companies are not operating as common carriers. For this reason, gathering and marketing charges are eliminated and the actual cost of handling oil is at a minimum.

As a result of the ability of the refiners to get plenty of crude elsewhere at lower prices, the principal purchasing companies in the Mid-Continent Field are understood to be largely overstocked, and for this reason are naturally as anxious to revise their system of operations as much as the producers, so that they can unload their oil at an advantage.

That the heads of the big Atlantic and Gulf Coast refining concerns have in mind some plan to relieve the situation in the Mid-Continent Field is quite probable, inasmuch as they are in the best position to study and form opinion on the matter. These refiners are also the principal marketers of refined products. For this reason they have their fingers on the pulse of the demand for the various products. They know how much these products they need in order to supply current demands and provide for the future. For the same reason they are the best judges of the amount of crude oil needed in advance, and at the same time are best able to bear the burden of storage, because their business does not depend entirely on the sale of crude oil.

At the same time the refiners are in a better position to borrow money for storage purposes, inasmuch as the banks are aware that this forms only a part of their business. A refiner can also balance his profits in such a way as to provide for cost of storage.

The refiners are better able to judge the price situation, inasmuch as they know what prices they can get for refined oil products, refinery costs, etc.

Mid-Continent Situation.

The Mid-Continent producers, purchasing agencies and refiners are today more or less "high and dry" as a result of the fact that they cannot dispose of their products in competition with products from the flush fields of California. In order to compete on a price basis with existing transportation and marketing facilities, it is estimated that they would have to sell crude and refined oil at the well and at the refinery for less than California operators, because of higher handling costs. This would place an impossible burden on them, and in fact, would probably force them out of business permanently.

Any revision in the present system of handling Mid-Continent oils would be for the purpose not only of enabling operators in that district to dispose of their production, but to dispose of it at a fair profit, in the face of flush production from such fields as California, without having to await the time of exhaustion, which is highly uncertain.

At present the oil markets are perhaps a little better off in that Mid-Continent oil cannot reach them easily, but the Mid-Continent operators are suffering accordingly. It would therefore appear that the development of new markets and markets for new products (such as furnace oil) is one of the best solutions of the situation in the long run.

However, even with consumption greater, the aparent disadvantages which the Mid-Continent operators must bear with relation to the flush fields will have to be overcome. Otherwise, the refiners will continue to develop fields outside of the Mid-Continent and go to them for their oil, ignoring the Mid-Continent entirely.

Refiners Have Gone Elsewhere

A resume of developments in the oil situation since the war shows clearly the trend away from the Mid-Continent in spite of the fact that Mid-Continent fields are producing more oil than ever. The Standard Oil Co. of Indiana has assured itself of a supply of oil from the Rocky Mountain district; the Standard Oil Co. of New Jersey, Standard Oil Co. of New York, Atlantic Refining Co., Gulf Oil, The Texas Co. and others, constituting the bulk of the crude oil consumers of the world, went to Mexico while that field lasted; then the bulk of them turned to California—always away from the Mid-Continent.

At present practically all the big refiners of the world (including the Dutch-Shell) are independent of the Mid-Continent. While this is so, the Mid-Continent producers canot expect to market all or even a large part of their production."

TECHNOLOGISTS HOLD CONVENTION

Petroleum Division of Mining and Metallurgical Engineers Discusses Matters Pertaining to Oil Industry. Effect of Back Pressure on Wells Is Described by One of the Speakers

The Institute of Petroleum Technologists, a division of the American Institute of Mining and Metallurgical Engineers, desires to increase its membership from the large number of production superintendents, petroleum engineers and others engaged in the oil industry who are eligible to join.

At the business meeting held following the two-day presentation of papers and discussions at Tulsa, October 11 and 12, this subject was gone into thoroughly. The chairman, E. DeGolyer, was authorized to appoint a committee made up of members of the institute in widely scattered fields to formulate a plan by which the interest may be aroused among the men whom the institute would like to add to its membership, but who, for one reason or another, have held back.

It is expected that at the February meeting, to be held in New York, the committee appointed at the Tulsa meeting will have a working report to offer.

The first day's program included papers by A. F. Meston on "Separation and Purification of Liquids by Centrifugation with Special Reference to Petroleum;" Lee D. Jones on "Centrifugal Removal of Wax from Petroleum Lubricating Oils," and Eugene E. Ayers on "Centrifugation Petroleum Refinery Emulsion," which were published in full in last week's issue of The Oil and Gas Journal.

The United States Bureau of Mines' film on "When Wages Stop," showing safety devices in the use of petroleum industry was one of the features of the Thursday afternoon session and E. O. Sanguinet presented a paper on the "Chemical Treatment of Cut Oil." F. D. Mahone spoke on the "Electrical Dehydration of Cut Oil," and J. H. Wiggins gave an extemporaneous talk on "Evaporation Losses."

Back Pressure on Wells

At the Friday morning session, John M. Lovejoy, of the Amerada Petroleum Corp. described the effect of back pressure on wells, his conclusions being the result of about seven months of study and experimentation by the Amerada company in the Brock Field in Carter County, Okla., by which some ideas held heretofore, were proven to have been erroneous.

Except in fields where production is caused by water pressure the gas that occurs with the oil is the chief agency for getting the oil out of the sand into the hole, the speaker said. After the pressure has declined, gravity may be a factor, but not an important one. With a given amount of oil in the sand and a given amount of gas occurring with the oil the ratio of gas volume per barrel of oil is the key to the ultimate recovery from the sand. The producer's efforts should be along lines that will lower the ratio and make the gas do a maximum of work in maintaining the yield.

The experiments of the United States Bureau of Mines on two small pumping wells in Osage County, Oklahoma, said Mr. Lovejoy, show a considerable reduction in the ratio of gas per barrel of oil by producing the wells against a back pressure. Other tests have been made with back pressure against flowing wells that not only have failed to show a reduction in gas ratio, but show an actual increase in this ratio. F. L. Estabrook directed a series of tests on flowing wells for the Midwest Refining Co., and the result of these tests was that straight back pressure did not lower the gas volume per barrel of oil.

Mr. Lovejoy quoted T. F. Morgan, who said that "restriction of oil production has undoubtedly assisted greatly in the conservation of gas, while its general effect has been to increase the ratio of gas to oils. Mr. Morgan referred to the large flowing wells in the fields in the Los Angeles basin.

How and Where Test Was Made

The Brock Field in Township 5, South, Range 1 East, Carter County, Oklahoma, was discovered in January, 1920, and had been slowly developed. It has 30 producing wells. The Amerada Petroleum Corp. owns all the productive leases and operates a casinghead gasoline plant in the field so that it was possible to meter the gas from separate wells and separate leases and from all the field. The production is from a series of sands in a shale and sand zone from 1,300 feet to 2,000 feet in depth. The sands average about 20 feet in thickness and the wells averaged about 45 bbls. initial production. The sand is fine-grained and compact, but not very hard. The company shot only three wells in the field because it was found that shooting caused caving in to such an extent that weeks were required to clean out. The production was not helped by the shots.

Back pressure was first applied to some of the wells by maintaining 15 pounds back pressure on a Ballard trap. The gas was used from the trap for drilling purposes. The back pressure did not affect the production of the wells in the trap. It was decided to try higher pressures and measure both oil production and gas volume. At that time most of the wells flowed through tubing set with a packer. Some were pumping and a few of the wells were flowing through casing. Each well was equipped with a spring release valve which could be set for any purpose desired and a pres-

(Continued on Page 105)

The Reid 24-Foot Diameter, 24-Inch Stroke, All Metal Band Wheel Power

Patented September, 1913. Other Patents Pending

The Positive Force Feed Oiling System, which assures a constant supply of lubricating oil to all moving parts and the dust guards on the wheel hub and eccentrics, preventing the entrance of grit between the bearing surfaces are two of the features insuring the owner of a REID 24-Foot Band Wheel Power many years of uninterrupted service.

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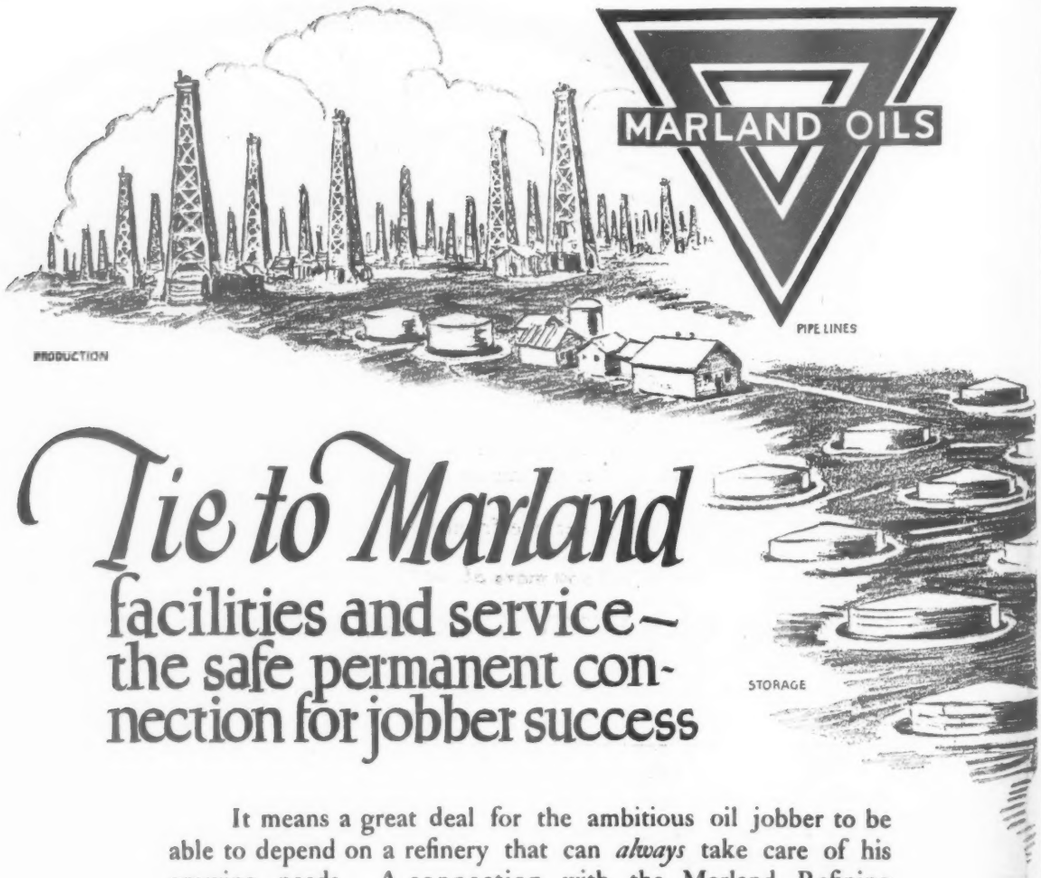

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We have the strength and growing facilities to enable you to depend on us each succeeding year to always give you the same high quality products on which to build your business.

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3-72

AND OILS

always good

MEN KNOWN IN OILDOM

Preston W. Lupher

On January 1, 1898, Preston W. Lupher, now vice president and general manager of the Logan Gas Company; his brother, Cyrus Lupher; T. N. Barnsdall, D. R. Hamlin and Henry Hamlin purchased the stock of the Logan Natural Gas & Fuel Company, Columbus, Ohio, which represented ownership of leases on 30,000 acres of prospective gas territory in Fairfield County, Ohio. Under the general management of Preston W. Lupher, active and extended development was begun, which resulted in finding sufficient gas supply to warrant the extension of the company's pipe line system until it has been able to furnish natural gas service to approximately 167,000 consumers, representing 800,000 people in more than 75 municipalities.

Exclusive of the gathering lines, this company has in use more than 1,000 miles of main lines. Mr. Lupher, anticipating the decline and exhaustion of the natural gas supply, protected the operations of his company by securing and carrying a large acreage of prospective gas territory.

Mr. Lupher is recognized also as one of the leading oil producers in the State. In 1910 he secured oil leases in Hocking County, Ohio, which justified his faith in oil deposits and resulted in the organization of the Preston Oil Company, the success of which during the last 10 years or more has been satisfactory. Mr. Lupher has, since its organization, been vice president and general manager.

Mr. Lupher and his brother, Cyrus Lupher, began exploring for oil and gas in 1877 under the partnership name of Lupher Brothers and, while they met with the disappointments and losses that the hazards of the business cause, the partnership survived successfully, terminating only upon the death of Cyrus Lupher in 1920.

The Logan Gas Company, along with the Preston Oil Company, has drilled close to 3,000 wells in the fields of Ohio during the past 25 years.

PERSONAL PARAGRAPHS

A. E. Harper has returned to Oil Springs, Ont., after three years in the Peruvian fields.

* * *

Charles Bess, operating in the Kansas oil fields, is home visiting his family at Toledo, Ohio.

* * *

R. J. Lindsay, vice president of the Hope Engineering Company, has been spending several days in Casper, Wyo.

Joe L. May, of the May Tank Company, has returned to Casper, Wyo., after a trip to Kansas City and Eastern points.

* * *

D. W. McKay has been made manager of the Tulsa office of the Hope Engineering & Supply Company, 603 Mayo Building.

* * *

W. L. Connelly, of the Mammoth Oil Company, has returned to Casper, Wyo., from a trip to New York, Washington and the East.

* * *

B. A. Thompson, of Denver, assistant traffic manager for the Midwest Refining Company, has been in Casper, Wyo., for a few days.

* * *

C. W. Pardo, secretary of The Texas Company of Mexico, has left for the United States to cool off and forget petroleum for a while—if he can.

* * *

C. D. Little, general manager of sales of Crane Company, was in Tulsa during the past week in connection with the Exposition and Congress.

* * *

E. C. Skinner, general purchasing agent for the Producers & Refiners Corporation, has been at the Casper, Wyo., offices of the company for some time.

* * *

High water and washouts caused considerable delay in schedule for B. O. Hammond, of the Parkersburg Rig & Reel Company's branch at Casper, Wyo.

* * *

Reed D. Bush, formerly production superintendent for the Empire Companies, is leaving for California to act as conservation supervisor for the State.

* * *

Walter Tschudin, assistant general manager of the Sinclair interests in Mexico, who is in active charge, has returned there from a month's vacation in Texas.

* * *

W. L. Stephens, assistant general manager of the New England Fuel Company, and E. S. Mitchell, of the same staff, have left Tampico, Mex., for the United States to rest.

* * *

A. G. Dana, of the Prairie Oil & Gas Company, Independence, Kans., has gone to Cheyenne, Wyo., to take charge of production of the Prairie's subsidiary in that territory.

* * *

W. B. Rogers, formerly of the right of way department of the Southwest Pennsylvania Pipe Line, now retired and a resident of Cleveland, has been visiting in Pittsburgh, Pa.

* * *

James D. Berry and Samuel Messer, president and vice president of the James B. Berry Sons Company, have returned to Oil City, Pa., from a business trip to New York.

* * *

H. C. Bretschneider, general manager of the Western States Oil & Land Company, has returned to his home in Denver after several days in the Casper, Wyo., office of the company.

* * *

George Cheda, general manager of the Mexican Fuel Company, the producing subsidiary of the Pierce Oil Corporation, has returned from a summer vacation spent in California.

* * *

George D. Paine, district manager of the Frick-Reid Supply Company for the Rocky Mountain region, has returned to the Casper, Wyo., store after spending several days in Rawlins and Denver, Colo.

* * *

William O. Owen has resigned as vice president of the Owen Osage Oil & Gas Company. He will be succeeded by V. A. Hays, formerly secretary and treasurer. J. E. Aitken will take the place of Mr. Hays.

* * *

A. M. Sellery, of the Ohio Oil Company, who has been stationed at Shelby, Mont., for the past year, passed through Casper, Wyo., on his way to look over the territory in southern Wyoming and northern Colorado.

John Reid and H. L. Hileman, of the Joseph Reid Gas Engine Company, Oil City, Pa., attended the International Petroleum Exposition and Congress. Before returning home they will make a tour of the Gulf Coast and Southwest.

* * *

J. C. Patterson, district manager of Frick-Lindsay Company, oil well supply dealers, was a visitor in Owensboro, Ky., recently, looking over the field for his company. He was very optimistic over the prospects for the field in the Owensboro district.

* * *

C. F. Stevenson and William Nicklin, superintendents of the South Penn Oil Company in the Bradford district, attended a company meeting in Pittsburgh, Pa., last week. C. P. Balsinger and J. S. Brothers of Oil City, Pa., attended the same meeting.

* * *

C. P. Bowie, engineer in charge of the San Francisco office of the United States Bureau of Mines; E. C. Lane, chemist, and C. E. Steidel, assistant petroleum economist, visited the oil fields of southern California in connection with the activities of the bureau in those districts.

* * *

J. S. Holl, advertising manager of the Link-Belt Company, Indianapolis, Ind., was one of the enthusiastic boosters of the International Petroleum Exposition and Congress in Tulsa last week. Mr. Holl was kept busy meeting customers and prospective customers.

* * *

Blake D. Hay has been appointed district manager of the Williams Tool Corporation at Chicago. Mr. Hay has been with the corporation for some time at their factory at Erie, Pa., and took charge of the Chicago branch office and territory October 1, succeeding Hugo E. L. Mey, resigned.

* * *

D. A. Campbell, formerly of Danbury, Conn., has been transferred to Bartlesville, Okla., as industrial fuel engineer of the new business department of the Empire Companies. Mr. Campbell first became connected with the Doherty interests in Denver, Colo., with the Denver Gas & Electric Company.

* * *

P. W. Wilkins has been placed in charge of the new motor and lubricating oil department of the Moore Refining Company in Chicago. Mr. Wilkins was formerly superintendent of the Arkansas City plant. F. C. Child, formerly general manager of refineries for the Sinclair Companies, will succeed Mr. Wilkins.

* * *

Paul L. Slonaker, Louisiana and Arkansas manager of the Joseph Reid Gas Engine Company, headquarters at Shreveport, La., has been spending the past week in Oil City, Pa., inspecting the Reid Shops and products. Mr. Slonaker is a Pennsylvania product and has worked in the various oil fields of the Keystone State.

* * *

H. R. Cranford, for two years chief clerk of the land division of the Empire Companies, Bartlesville, Okla., has been promoted to the position of purchasing agent of the Toledo Edison Company, Toledo, Ohio. He has been with the Doherty interests since 1912 and has been with the Empire Companies since 1917.

* * *

John Hazelett, representing R. G. Gillespie, of Pittsburgh, Pa., was in Owensboro, Ky., looking over a number of promising leases in the vicinity of Aetnaville. Mr. Hazelett was much pleased with the development in that section of western Kentucky, and it is probable during the winter or early spring the Gillespie interests will develop the territory now held under lease.

* * *

P. J. Hartman of Cygnet, Ohio, has been promoted to the position of chief engineer of the Imperial Pipe Line Company at Wayne, Mich. John Raney and Clarence Delancey, also employed by the company, have been transferred to Wayne; Gerald Hecht to the pump station near Sylvania, Ohio, and Burly Callan to Utica, Mich., at the pump station. The Imperial line runs from Cgynet, Ohio, through Michigan to Sarnia, Ontario, Canada, where the Imperial has its big refining plant.

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Yields From Various Grades of Crudes

Cold Settling and Centrifuging Methods Contrasted in the Production of Lubricating Oil and Bright Stock

By F. B. Koontz
General Superintendent Manufacturing Department, Cosden & Co.

The selection of the proper crude is one of the principal factors which determines whether a refinery is to be operated at a profit or a loss. The recent price classification in the Mid-Continent area gives the refinery a choice of three crudes.

The operating equipment is the real factor to be considered in refining. If the yields are to be obtained at the lowest cost the most modern equipment must be used. As the principal operation carried on in a refinery is fractional distillation, it is of the utmost importance that this equipment be of the most efficient type. Recent development along this line is the use of aerial towers to such an extent that all cuts or fractionations are made direct from the crude. The more complete the equipment the sharper the cuts, with each fraction containing a minimum of those fractions just above and below, and the consequent elimination of rerunning. This sharp fractionating renders possible the blending of high and low boiling point distillates for the different stocks, which not only saves many changes in operation, but what is more important, increases the yields.

Crude Distillation

In the refining of crude we encounter three general methods of distillation, namely: batch, semicontinuous and continuous. In batch distillation the still is charged and the distillates taken off, leaving bottoms which are pumped out. Batch distillation necessarily decreases the plant capacity but at the same time it is possible to make a closer fractionation.

In semicontinuous distillation one or more stills are used. The still is charged and after sufficient distillates have been taken off fresh charging stock is pumped in, until the quantity of accumulated bottom makes it necessary to shut down and pump out. This method of distillation increases the plant capacity somewhat over the batch method. The fractionation, however, is less sharp. In any case, these methods of distillation should not be applied except when topping crude, though they are the ones most generally used for rerunning stocks.

For continuous distillation two to 12 stills are generally used, each still lines being a few inches lower than the preceding in order that a gravity flow may be had. The oil is fed continuously from the first to the last until sufficient distillates are taken off. Continuous distillation, from the standpoints of capacity and fuel economy, is the most efficient method of handling the crude, especially if the stills are so equipped that all finished products may be made by one initial distillation.

Pressure Stilling

If the maximum yields of gasoline and kerosene are to be obtained from the crude, it is necessary to use some type of cracking still. There are many different processes of cracking, the more successful being based on temperature and pressure. As yet, no atmospheric or catalytic processes have been developed which can compete commercially with the shell type or tube of pressure stills, and today the shell type is gradually becoming obsolete.

During the past few years, through constant experiment and operation, the tube still has been developed to a high degree of efficiency. There are several designs in use, consisting of a series of pipes, usually about four inches in diameter, through which the charging stock enters before going through the system to shells and towers. Compared to the shell type of still, its advantages are numerous. A minute description of these points would be wearisome at this time, but mention might be made of the saving in cost of construction. Generally speaking, a tube still of 1,000 barrels capacity, which is approximately the capacity of eight 4x40-foot shells, can be constructed at a cost of 20 to 30 per cent less than for the eight shell stills.

The character of charging stock to the tube still is not so sharply limited as it is to the shell. The usual shell type, operating at lower temperatures and pressures, is run on uncracked gas oil, whereas, the tube still can handle not only this distillate but other characters of distillates which are impossible to be processed through the ordinary shell still.

Operating cost is a factor which reflects favorably on the tube still, both in the items of labor and fuel. The labor required to operate two batteries of shell type stills of a capacity of 2,620 barrels can handle four tube stills of 4,000-bbls. capacity.

Since the demand for the light products of petroleum is constantly growing, it is to the tube still method of cracking that we must now look for increased production, conserving at the same time that which has been heretofore a costly economic waste.

Treating

After production, the treating of the distillates that they may be shipped as refined products, is necessary. This is accomplished by treating with chemicals or by filtering through Fuller's Earth. The general methods of chemical treatment are batch and continuous, the latter being the most economical, especially in the handling of volatile products. At present many attempts are being made to supplant the old methods for decolorizing and deodorizing calcium hypochloride treatments. It is a well known fact that cracked products are more difficult to treat than those direct from the crude. Also, it is a recognized fact that when properly treated the refined product is equal or superior to the straight run gasoline when used as motor fuel.

Lubricating Oil Distillation

In the production of lubricating oils the three methods of distillation are again encountered, the batch and continuous methods being most generally used. The quality of lubricating oil is greatly affected by the manner in which the distillation is conducted. In the production of wax distillate, the use of an excessive amount of steam improves the quality and increases the yield of lubricating distillate, but on the other hand it inh the formation of crystalline wax, resulting in a poor pressing stock.

The method for removing crystalline or cracked wax, such as pressing, depends on the wax having particles of definite form whereby the wax can be strained from the oil. In order to be removed in this manner the wax must be chilled and be of a crystalline structure to form a porous but firm cake against a press cloth. The wax must retain its structure so as not to be forced through the cloth, and the wax cake, as it builds up, must remain porous so as to allow the oil to strain through it.

The wax free oil resulting from the pressing is utilized in the manufacture of lubricating stocks. The wax is taken from the presses and as it still contains oil, is sent in a liquid state to the sweat houses to have the oil and low and high melting point waxed removed. The wax is placed in pans containing water and coils of pipe. The temperature of the house is lowered until the wax assumes a solid form, then the water is drawn off, the temperature gradually increased and the oil slowly drops from it, or to use the refinery expression, the wax "sweats."

After sweating, the wax is practically free from oil, and is again melted and filtered through Fuller's Earth or other decolorizing agents. The liquid is then run to the barreling house, where it may bagged, barreled or caked.

Percolation vs. Contact

After chemical treatment, these oils which are not sufficiently decolorized, are filtered through Fuller's Earth or some decolorizing agent. The old percolating filter is the one most generally used for this process, but recently the contact process has been developed and is much superior in the matters of capacity and low cost of installation. It would seem that here is another phase of refining operation which may be abandoned by the up to date refiner in the not far distant future.

Cold Settling vs. Centrifuging

Another department which offers a choice between two general methods of refining is in the production of lubricating oil and bright stock. Here again the more recent development—the centrifugal separation of wax, based on the principle used in the cream separator—is rapidly gaining favor over the old cold-settling method. Cold settling depends upon diluting the oil to a gravity where the wax when chilled to solid form will be slightly heavier than the solution in which it is suspended. The amorphous wax can then be removed by holding the oil cold until it settles to the bottom of the tank, or it can be centrifuged out after the oil is chilled. The centrifugal method is not only cheaper but produces bright stock of a superior quality in that it extracts a larger percentage of the amorphous wax, a product which has no lubricating value, and at the same time increases the cold test of the finished oil.

The outstanding advantage of centrifuging is that it makes a sharp line separation between the wax and the dilute oil. Centrifuges in use for this work multiply the difference in weight of the wax particle and its displacement in the oil many thousand times. This makes the separation immediate and complete. By separating the wax from the oil, as soon as the oil is chilled, less insulated chilling tanks are required; there is less oil and naphtha tied up in the process and it is not necessary to hold the chilling tanks at the low temperature for long periods. In diluting the stock for centrifuging, less naphtha is required than is necessary for cold-settling, thus decreasing the volume to be chilled and therefore effecting a saving in refrigeration.

Process More Economical

Since centrifugal removal of the wax makes a clean cut separation, there is less oil entrained with the wax and less wax in the discharged oil. This increases the yield of lubricating stock and produces a better cold test. The greater part of the cost in the manufacture of viscious lubricating oils comes before the wax removal. This leaves a valuable product to be dewaxed and a loss of a high-priced oil in the cheap wax is serious. It is safe to say that centrifuging produces 10 per cent more finished oil from a given amount of filtered stock than the average cold-settling plant. Allowing for the correspondingly smaller production of wax, this increases the value of the combined finished products by a little over 7 per cent.

In the manufacture of bright stock by the centrifugal process it is necessary to go through about the same process of filtering and refrigeration as with the cold-settling method. The time element by cold-settling is one of the objectionable features in this method. The great differences between the use of the centrifugal process and cold-settling is the reduction of time by the centrifugal process, increased capacity and low cold test. The cold test is 20 to 25 degrees lower for the same viscosity when manufactured by centrifuging. This means that during the colder season of the year it is a more desirable blending medium with light neutrals for motor lubrication than cold-settling bright stock.

There has been much controversy regarding the relative merits of the bright stock produced from Mid-Continent crude and Pennsylvania crude, but for all practical purposes, there is very little, if any difference between the finished products when manufactured by the centrifugal process of separation; but there is a difference between bright stock made from Mid-Continent crude by centrifuging and that made from Pennsylvania crude by the cold-settling method. A comparison will show the gravity, flash and fire to be about the same, but the viscosity at 212 degrees is 40 to 50 points higher and the cold test 20 points lower than the cold-settled bright stock.

Bright Stock

Bright stock is a product from which the better lubricants can be made. The principal use for bright stock is, compounding with light neutrals for building up viscosity and flash. If a 40 to 45 cold test bright stock, as made by the cold settling method, is used as a blending medium, the resulting cold test of the blend will be too high for motor oils; on the other hand more of the 20 to 25 cold test bright stock manufactured by the centrifugal process can be used in building the neutral to a higher viscosity and lower cold requirement. As a result, using cold test bright stock to blend or compound will have a higher flash, fire and viscosity and lower cold test and is a more desirable product for motor lubrication than the lower flash, fire and viscosity and higher cold test bright stock made by the cold settling method.

The viscosity of amorphous wax at a high temperature is very low. Wax is a non-lubricant. Bright stock with a low cold test as manufactured by centrifuging contains less wax than cold settled bright stock. In the meeting of viscosity specifications for high temperatures, less of the bright stock produced by the centrifugal process is required than would be needed of cold settled bright stock, for the reason that the former is more viscous at high temperatures. It follows therefore, that a low cold test bright stock is more valuable as a blending medium with neutrals.

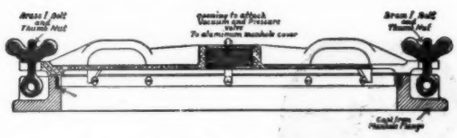
From a given quantity of cylinder stock treated by cold settling, 70 to 75 per cent will be turned out as finished bright stock. By the use of the centrifugal process, 80 to 85 per cent is turned out as finished stock. The difference in the yields is amorphous wax, which, as stated, is a low flash, low viscosity, non-lubricant.

Maximum Lubricating Content

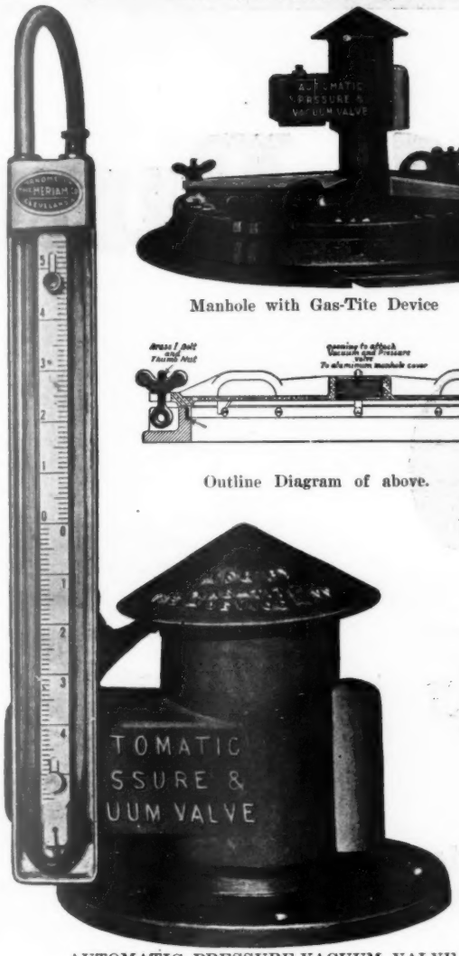
The use of centrifugal force for dewaxing of residuum containing all the lubricating fractions of crude is another department in the manufacturing of lubricating oils. The processing of this residuum oils. The processing of this processing for bright stock, after the non-

(Continued on Page 103)

Manhole with Gas-Tite Device



Outline Diagram of above.



AUTOMATIC PRESSURE-VACUUM VALVE
(With Manometer Attached)

Gas-Tite Automatic Pressure Valve
(With Manometer Attached)

Made of brass and releases at 2¼ ounces. The Vacuum Valve is made of aluminum and releases at ½ ounce. This Device is equipped with brass wire gauze fire arresters at all exhaust openings. Provision is made for draining any fluid which may accumulate in the exhaust valve chamber.

Gas-Tite Thief Hole Ring and Cover

A positive gas tight, fool proof device. Ring is made of cast iron. Aluminum cover is held securely in place by a cast iron weight. Cover cannot be accidentally left open because steel step does not permit raising cover at an angle of more than 80 degrees and weight forces it down when foot pressure is removed.

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GAS-TITE DEVICE

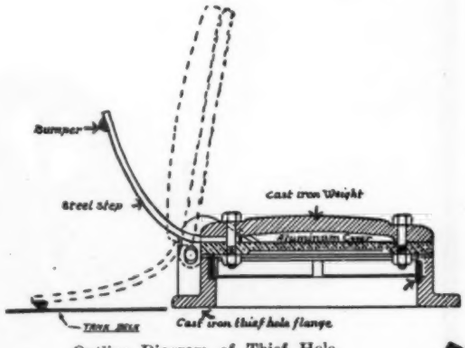
Shipped Complete For Immediate Installation

You can equip your tanks with Gas-Tite Devices within a very short time, then enjoy the positive knowledge that they are actually gas tight.

They are shipped complete for immediate installation, bolts, nuts, gaskets and nipples are furnished. The gaskets are cut to proper size and the holes are punched in them. When the holes are made in the tank, all you will need to install these proof perfect devices will be a screw driver and a monkey wrench.

Insure top prices for your crude by preventing evaporation, gaining by saving the quality. Many producers are keeping their crude with them at its original high gravity, insuring 20 cents to 40 cents more per barrel in grade.

Ask your tank builder about Gas-Tite Devices. He will be glad to install them for you, because they are 100% insurance that the tanks he will build for you are actually gas tight.



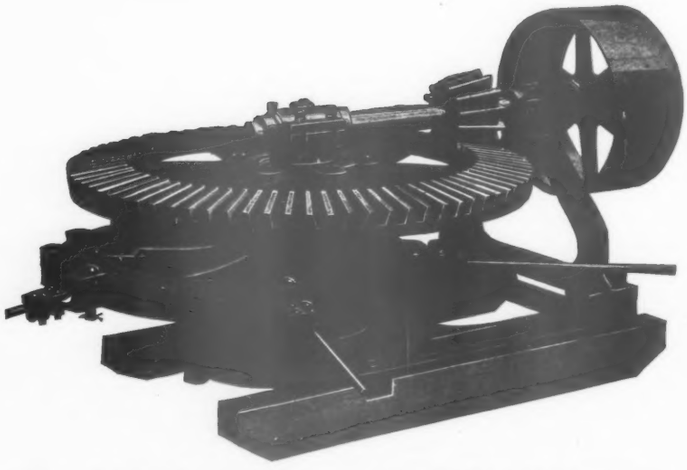
Outline Diagram of Thief Hole

Gas-Tite Thief Hole.

THE GAS-TITE DEVICE CO.

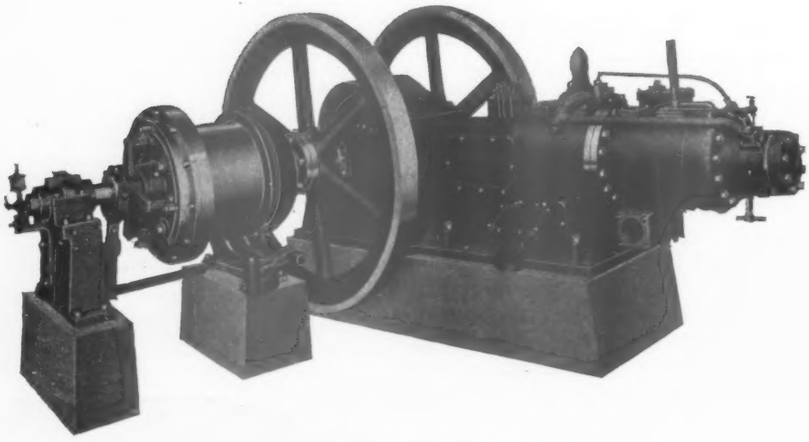
PAWHUSKA, OKLAHOMA

National Pump



No. 6 National Geared Single Eccentric Under Pull Pumping Power

No. 12-C National ... Whe



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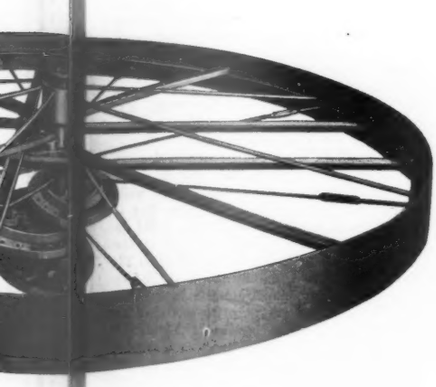

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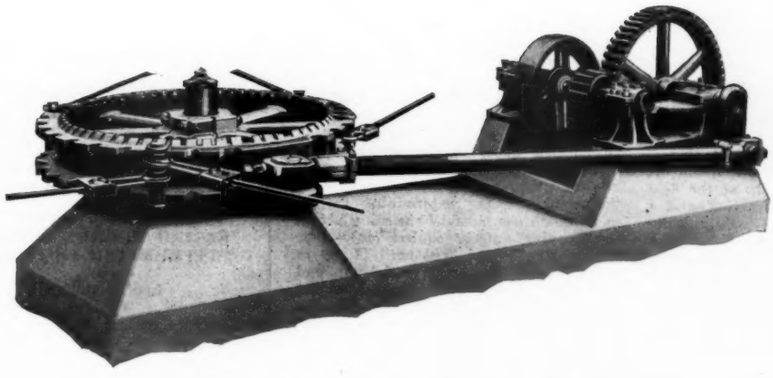

National Push and Pull Pumping Power

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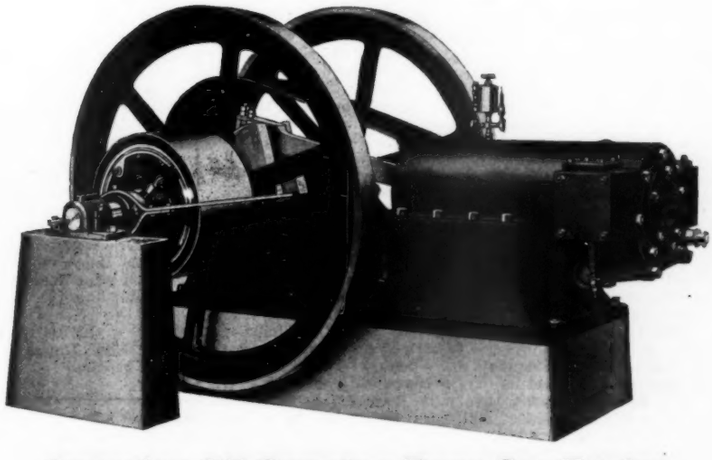


Superior Oil Country Type Gas Engine

SUPPLY COMPANIES

NSCO

NATURAL GAS DEVELOPMENTS

Seeking to Settle Permanent Gas Rate In Western Ontario

CHATHAM, Ont., Oct. 13.—The fixing of a permanent rate for natural gas in those western Ontario municipalities which have failed to reach definite rate agreements with the pipe line companies will be undertaken in the near future. The Department of Mines at Toronto has received the complete report of the appraisal and audit of the experts who have been valuating the Union Natural Gas Co.'s plants. Immediately this report is available as a basis for rate fixing. the Natural Gas Board of Reference will commence its sittings to hear applications for the fixing of natural gas rates.

According to a statement given out by Hon. Charles McCrea, Minister of Mines, it is understood in governmental circles that the Ontario gas fields, in the matter of rate fixing, are gradually arriving at a stage at which a new basis must be adopted. In past years the cost of production has been the principal factor. Now, however, the longevity of the field must be taken into consideration, and a rate must be fixed which will militate against waste. Natural gas in western Ontario is no longer available for manufacturing purposes to any great extent, and it is even passing rapidly as a means of heating. The time when it will be exhausted in this district for practical purposes is, according to Mr. McCrea, "distinctly on the horizon."

A majority of the municipalities supplied by the Union Natural Gas Co. have entered into rate agreements for a uniform period of two years, ending November, 1924. The municipalities which did not reach such agreements include Windsor and the adjacent border municipalities, Dresden, Ridgetown and a few others. Early in the summer the Board of Reference granted the company an increase of rates to a maximum summer rate of 90 cents, but this rate was suspended on the understanding that a permanent rate would be fixed by the board of reference after the appraisal and audit was completed and should be retroactive to May 1, 1923. Application for rate increases in the municipalities affected will probably be heard this month.

The Board of Reference last week at St. Thomas, Ont., heard an application from the town of Aylmer for a reduction in natural gas rates. The present rates are 95 cents per 1,000 in winter and $1.15 in summer, an order fixing these rates having been made last December. The Central Pipe Line Co. supplies natural gas to Aylmer from the Vienna and Richmond Fields. The town of Aylmer claimed that an order of Natural Gas Commissioner E. S. Estlin, fixing a 40-cent winter and 60-cent summer rate was still effective. The Board of Reference reserved its decision on this application; but issued an order designating the franchise for the township of Malahide as a transmission franchise, entitling that municipality to its original contract rates.

GREER COUNTY, OKLA., GASSER

OKLAHOMA CITY, Okla., Oct. 15.—George Kadane, of Wichita Falls, who has discovered gas in a well being drilled on the Pat McGee farm northwest of Willow, Greer County, a few miles southeast of the Sayre Field, is to pipe gas to Mangum if contracts are made. He says the well's capacity is over 15,000,000 feet daily with a rock pressure of 360 pounds. Kadane may start another well on a tract adjoining the town of Moravia soon.

NATURAL GAS ECONOMICAL AND EFFICIENT FOR CUTTING STEEL

By Letson Balliet, E. M.

Formerly Research and Efficiency Engineer with Moore Shipbuilding Co., Oakland, Calif., during the war.

During the war, when the shipbuilding program was at its height, there was such a demand for acetylene gas, (Prestolite is the same in analysis C2H2) that it became difficult to obtain deliveries, and a greater shortage was feared. Exhaustive research work was undertaken to find a substitute for acetylene, at least a substitute that would relieve the demand for acetylene in parts of the work being done.

For steel welding acetylene has no efficient substitute, although some laboratory experiments with other gases succeeded in producing a weld, but under conditions that are not practical for structural steel, railroads and shipyards to adopt.

For cutting steel, or "burning" steel, any of the gases in the accompanying table will perform the work. The question of price, supply and simplicity of equipment are the determining factors as to which gas should be used. Cutting or "burning" steel requires only that the steel be heated "red hot" (1,200 to 1,400 degrees F., being sufficient) and that a jet of oxygen be directed against the red hot spot. The exygen does the burning. The hot steel takes on the oxygen and becomes an iron oxide. It burns just the same as a board would burn. On the purity of the oxygen depends the efficiency of the cutting. Steel can be heated red hot over a coal fire, blacksmith forge or in a bonfire, and "burned" or cut with an oxygen jet alone, in the total absence of any other gas but it would not be a very efficient way handling it. It is easier to take the torch flame to the steel, than it is to take the steel to the fire.

Great Heat Not Needed

Any old torch and fuel that will heat steel red hot, through which a jet of pure oxygen can be directed against the steel, will cut it, but it will not weld it. Where natural gas, coke oven gas, manufactured gas or Pinsch gas are obtainable, they are much cheaper than acetylene or prestolite and work equally well for cutting and bending and relieves the high priced acetylene of nearly all this common work, saving it for welding.

The "wizardy of acetylene" the "tremendous high heat of acetylene" and such statements of the public press are misleading for there is no more necessity for excess heat in kindling steel than in lighting a cigar. When either the steel or the cigar is hot enough to kindle it will begin to burn if the oxygen is present that either needs. The cigar will get its oxygen from the air, but the steel must have purer oxygen than air, and either will burn faster the purer the oxygen.

It will be a surprise to city gas companies to know that one great shipyard was piped with city gas at 25 pounds pressure and that hundreds of oxy-acetylene torches were used with city gas instead of acetylene, resulting in a saving of $600 a day over the cost of using acetylene for cutting, flanging and pipe bending. The speed of cutting was identical with city gas or acetylene, when the same oxygen was used with both. The speed of work with city gas, piped everywhere, was greater because the pressure was maintained with a master regulator, and there was no changing of cylinders, nor change of adjustment, nor transportation of cylinders to place of work. It will also be a surprise to many to know that city gas can be compressed in cylinders like oxygen and hydrogen and sold for transportation to work that is remote from 25 pound gas pressure. Railroad work and structural steel work, can use compressed manufactured or natural gas equally well with acetylene, (always excepting for welding work.) Where low pressure city gas is available a similar apparatus, with a compressor and receiver, to that which is commonly used in garages for filling tires, can set the gas pressure up to 25 or 30 pounds and maintain it for shop uses. Refiners of petroleum can supply gas in cylinders if they build a market for it.

Substitute An Improvement

It is true that the users will have ot be "educated" to the fact that other gases will perform the work, and to the fact that by keeping the acetylene tank close by, to switch onto for welding, a great saving can be made in all other work.

It is a common belief of human minds that a "substitute" is an inferior product, but in this case the substitute happens to be "an improvement" for efficiency. The work of fuel gas is equally good when finished. The cost of $1 to $2 per 1,000 feet for fuel gas, again $25 to $30 per 1,000 feet for acetylene is a considerable saving. Compressing in cylinders is less expensive than dissolving acetylene under pressure in cylinders. Explosion dangers are less with fuel gas than with acetylene. The amount of work per cubic foot of fuel gas and acetylene is so nearly identical that the operator may use a little more of either at different times. The time element with either, is identical, when the same oxygen is used

(Continued on Page 72)

WRITES STORY WITH STRING TO KNEE AND TO TYPEWRITER SHIFT KEY

LOS ANGELES, Calif.
October 3, 1923

The Oil and Gas Journal,
Tulsa, Okla.
Gentlemen:

In reading The Journal obtained from news stands, I wondered if the inclosed table wouldn't be of some value to your readers, and as I was in a railroad wreck and was brought here for repair to a broken arm, I have amused myself by trying to write on a typewriter while the salvage crews are working on the human wreckage.

It isn't the nicest job of typewriting you've ever seen but just try tieing up your right hand and writing a few pages and see what you get. I have a string from the shift key to my knee but time is no object while the railway company doctors are holding me useless.

If I forgot to jerk my knee for a capital in the right place put the upper case mark on it.

This dope is prepared from my research work which I did while in the shipyards during the war. If you want this Ms go ahead and use it.

Yours truly,
LETSON BALLIET,
At Hotel Hayward, Los Angeles,
(for repairs.)

New Deep Gas Sand Is Found in Grady By Magnolia Oil Co.

CHICKASHA, Okla., Oct. 15.—A new gas sand, the deepest in the Grady County Field, has been proved as very productive by the Magnolia Co. in its well in Section 14-5n-8w, where at 3,170 feet it has completed a 15,000,000-foot gasser.

Drilling has been stopped with bit only three feet in the sand and, according to Charles Neal, of the company's land department, additional drilling in the sand is not contemplated, as there was trouble in keeping the bit on the bottom.

The rock pressure has not been determined. The gauge used at the well registered its limit of 1,000 pounds when placed in the well. How much above the 1,000 pounds the rock pressure will run will be determined only when a gauge with a greater register is procured. Extent of the production possible from the sand has not been determined.

The well is more than twice as deep as the Nichols discovery well and it marks the third distinct sand from which wells in the field are producing. The first is the Nichols sand, hit at from 1,281 to around 1,400 feet. The second is the Ramsey sand at 2,500 feet, in Section 23-5n-8w, and the third is at the 3,170-foot level proved by the Magnolia in its new well. Operators are pointing out that the new well indicates the Grady Field will be three times as long lived as was possible with the bringing in of the discovery well.

A few hours after the Magnolia was registered as a 15,000,000-foot producer, the Little Nick Oil Co. drilled in its second well, the location being in Section 35-5n-8w, and the volume being estimated at 15,000,000 feet a day. The well is 1,426 feet deep, in the Nichols sand, with 41 feet of pay.

This is the well to which the Chickasha Gas & Electric Co. will build its line through which gas will be brought to Chickasha. The company has ordered pipe for the connecting line. A consignment of the 8-inch line has been shipped from the factory in Pennsylvania. The company has surveyed the route over which the line is to be laid and is starting work on obtaining the right-of-way. Actual laying of the line is to start in a few weeks and the company is pledged to make the 42-cent domestic rate and the 17½-cent industrial rate effective by December 16.

The new Magnolia well at 3,170 feet is in the extreme northern end of the field. From that point Grady County territory is now proved as productive of gas to the extreme southern corner of the county where Hoe Ray has a 15,000,000-foot gasser in Section 28-3n-5w. The distance is 30 miles.

The trend runs in the usual northeast to southwest direction as marked between the Cement Field and Robberson Field. Wells producing gas are scattered over the entire distance, the main body of the field, 5 miles south of the new Magnolia well.

NEW MEXICO CARBON PLANT

OKLAHOMA CITY, Okla., Oct. 15.—W. R. Childers and associates of Gallup, N. M., are organizing the New Mexico Oil & Refining Co. that will establish a plant at Aztec to manufacture natural gas gasoline and carbon black. The company is reported to have contracted for gas from two wells producing near Aztec. Machinery for the plant has been ordered. It is estimated that the gas will produce a gallon of gasoline each 2,000 feet of gas.

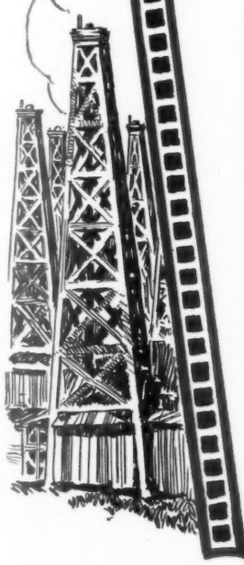
The "Great Spirit" of the Mid-continent Oil Fields

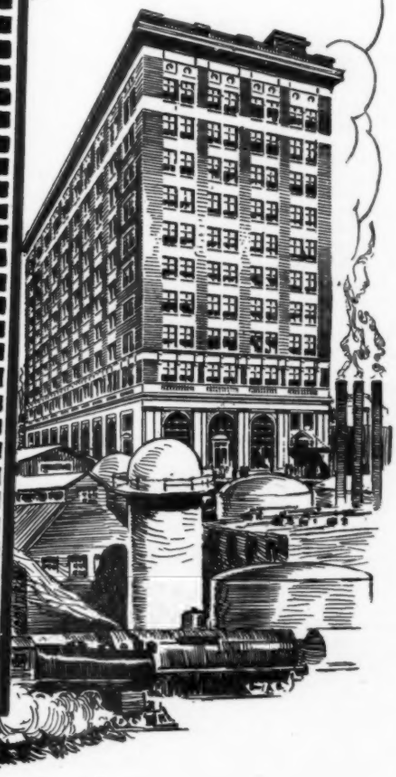
The Prophet Sought by the Oil Industry for Advice on Credits

Years ago; when Oklahoma, the Great Mid-Continent Oil Fields of today, was virgin soil; tradition has it that the great spirit breathed a prophecy of untold riches for the Red-Man.

Today the prophecy is fulfilled beyond the dreams of the wildest imagination. Vast stretches of territory embracing half a dozen States is dotted with clumps of derricks where the drill has touched. Railroads; pipe lines; highways; refineries; tank farms; supply houses have followed in the wake of oil. An industry with millions invested; more millions derived; more millions constantly in action through the interchange of business in the world of oil.

And today, in the Oil Industry the "Great Spirit" is still present. It is the spirit of a great bank—a bank breathing the very spirit of oil—all knowing, all seeing—a source of guidance and help to those who MUST know whose credit is good and to those who wish the goodness of their credit to be broadcast to the world.





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EXCHANGE BANKS OF TULSA

The Exchange National Bank — The Exchange Trust Company

Combined Resources Exceed Forty Million Dollars—

Steptoe Act Again In Limelight With Rehearing Nov. 19

The action of the United States Supreme Court in ordering a rehearing on November 19 in the Steptoe case, in which the court, by a 6 to 3 decision last June, said that West Virginia cannot refuse to supply the industries and municipalities in Pennsylvania and Ohio with natural gas under the Interstate Commerce act, is regarded as of the utmost importance to the natural gas industry in Pennsylvania, Ohio and West Virginia.

The decision was rendered after the case had been argued three times and had attracted leading lawyers in the country. The action of the court in ordering a rehearing, on petition of the State of West Virginia, has not occurred in similar circumstances in the last quarter of a century.

The cast in point of law is important in that it virtually placed natural gas under the regulation of the Interstate Commerce act and made it impossible for a State to keep its own natural resources for its own consumption or needs. It is important, also, in that many millions of dollars are involved in the recent decision. The industries and towns along the West Virginia border in Pennsylvania and Ohio, it is pointed out, are dependent on this natural gas, and if they are deprived of it there will be a great loss.

Fourteen years ago West Virginia encouraged the formation of companies to transport its natural gas into Pennsylvania and Ohio. Approximately $300,000,000 is invested in this business and the pipe lines extend as far as Pittsburgh and Johnstown, Pa., and Cleveland, Toledo and Cincinnati, Ohio. In 1918 the West Virginia gas fields supplied 70,000,000,000 feet to home consumers and 157,000,000,000 feet to consumers in other States. In Pennsylvania the gas was used by 300,000 domestic consumers and in Ohio by 725,000. There is no other natural gas available and to change to other fuel would cost these consumers in both States $102,500,000.

The case was so filled with difficult points that the court originally required three arguments by the attorneys representing the respective States. Finally, on June 11, last, Justice Van Devanter rendered the majority decision, in which he said, in effect, that natural gas is a lawful article of commerce and its transmission from one State to another for sale and consumption is interstate commerce, and therefore West Virginia cannot refuse to sell natural gas to Ohio and Pennsylvania consumers, which traffic was encouraged by the West Virginia laws.

Justices Holmes, Brandies and McReynolds dissented.

"I see nothing in the commerce clause to prevent a State from giving preference to its inhabitants in the enjoyment of its natural advantages," said Justice Holmes.

The brief filed by the Attorney General for West Virginia, on which rehearing was ordered, sets forth that unless the decision is modified it will be impossible for the people of West Virginia to obtain natural gas in case of a scarcity, as under the decision the gas in interstate commerce cannot be cut off. The petition states that the position taken by the Court is "incompatible with preexisting power of the States of the Union and common law and by statute."

ABANDONS GAS FIELD

OKLAHOMA CITY, Okla., Oct. 15.—Because a gas field 7 miles north of Granite has been exhausted and the company has failed to find gas in other wells, the Granite Pipe Line Co. of Granite, has applied to the Corporation Commission for a permit to abandon and remove the line. The company reports that it drilled seven dry holes, at a cost of $20,000, in an endeavor to hold up gas production and that no other drilling is under way in that vicinity that would warrant the line being kept intact.

NATURAL GAS ECONOMICAL AND EFFICIENT FOR CUTTING STEEL

(Continued from Page 70)

with both. The operator may waste a little time getting a drink when using one or the other, and the oxygen consumed is less with fuel gas than with acetylene.

City gas requires about 1 cubic foot of oxygen per cubic foot of the gas, as against acetylene requiring 2½ cubic feet of oxygen per cubic foot of the acetylene. The temperature of the gas flame is 3,500 degrees as against 5,000 degrees with acetylene but 2,000 degrees is ample to start combustion. A waste or a leak of acetylene at 2½ cents to 3 cents per cubic foot runs into money fast, while 10 feet wasted of city gas is but 1 cent.

Piped Gas Economical

Simplicity of compressing and maintaining a pipe line delivery without loss of leaks is a big item in economy, and a saving of time losses in changing cylinders, that always leave some in the cylinders when the pressure is too low to work. Piped gas is always ready at the tap; cylinder gas has to be adjusted at the regulator.

Gasoline gas generators are less expensive and less dangerous than acetylene generators, and isolated generators can be installed and even portable generators on trucks and cars. Gasoline gas requires a little more oxygen than acetylene in supporting the flame but all gases require the same amount of oxygen to combine with the steel.

Gas engines and automobiles can be run with any of the gases in the table, but as yet not all are efficient in the matter of transporting, though it would be possible for cars to be built with pressure containers, that could be filled with gas under pressure if the gas companies ever maintain service stations to fill pressure containers as they fill tires with air.

The following table will have many values to oil and gas producers:

TABLE OF HYDRO-CARBON FUELS

Name of Fuel	Symbol	B. T. U. Per. Lb.	B. T. U. Cu. Ft. of (Vapor)	Cu. Ft. Air Necessary to Consume 1 Cu. Ft. of the gas
Hydrogen	H2	62,000	345	2.39
Carbon-Monoxide	CO	4,400	341	2.39
METHANE (Natural Gas)	CH4	23,900	1,065	9.56
Ethylene	C2H4	21,476	1,673	14.40
Ethane	C2H6	22,300	1,860	16.66
Acetylene	C2H2	21,400	1,600	11.91
Prophane	C3H8	21,650	2,554	23.82
Prophlene	C3H6	21,420	2,509	21.42
Butane	C4H10	21,330	3,477	30.95
Pentane	C6H12	21,186	4,250	38.10
BENZINE	C6H6	18,300	4,010	35.71
SEXTANE (Gasol ne)	C6H14	20,916	5,012	45.23
NAPHTHALENE	C10H8	17.316	6,176	57.14
KEROSENE	C10H22	18,200	6,412	73.80
Butylene	C4H8	19 400	3,030	28.57
Mfg. City Gas	Compound Gas		Varies	Varies Slightly
From Fuel Oil	See Analysis		Around 600	Around 5.2

Comments on the table: Note that H., the lightest known gas, has about the same B. T. U. per cubic foot as half burned carbon (CO), but it is so light that it requires 15 times as many cubic feet to make a pound, and has the greatest number of B. T. U. per pound of any gas.

The common well-known products of the fuel oil and petroleum business are spelled in CAPITAL letters above.

The last column of the table is the amount of air that your carburetor would have to pass to deliver 100 per cent combustion, if you were using the gas as a fuel in your auto. Hydrogen would work in a cool engine. Kerosene would require a much hotter engine to gasify it, but the air consumption would be as indicated, at the proper temperature for each gas.

Alcohol is C2H5 OH. (a good fuel of carbon and hydrogen.)

Manufactured fuel oil gas, is composed of H—from 45 to 60 per cent, CO from 10 to 14 per cent, and Natural Gas (CH4) from 25 to 30 per cent, mixed. It has some impurities in small quantities and traces, that have no heat values. Oxygen, or air required, varies a little according toanalysis.

If pure oxygen is used instead of air divide the last column of figures by 5, to obtain the amount of oxygen required, as air is only one-fifth oxygen and four-fifths inert nitrogen.

GAS FIELD EXTENSION WILL AVOID SHORTAGE

OKLAHOMA CITY, Okla., Oct. 15.—It is not likely gas consumers of Oklahoma and North Texas will suffer a shortage of fuel during the coming winter, for gas fields being developed in western Oklahoma have assured the Oklahoma Natural Gas Co. of all the gas that will be needed and new mains connecting fields of Stephens and Eastland Counties in Texas promise to more than make up for the shortage faced by the Lone Star Gas Co. because of the decline in production of the Fox, Robberson, Duncan and Walter fields in southern Oklahoma.

Prospects for plenty of gas for several years are found in the Grady County and Sayre Fields. The latter promises to become important and may serve a large section of western Oklahoma that has been far removed from gas fields. It is not improbable the upper Panhandle of Texas and sections of northwestern Oklahoma may have a gas service within a year, being within easy reach of the Amarillo Field and a field that doubtless will be developed in the vicinity of Texhoma, Okla.

EDMONTON GAS READY

CHATHAM, Ont., Oct. 15.—Northwestern Utilities, Ltd., expects to deliver natural gas to Edmonton from the Viking Field by October 25; the main pipe line from the Viking Field to Edmonton will be finished about October 16. Practically all the work of installation has been completed, including the regulator at Bonnie Doon. The gas system for the town of Tofield is nearly completed, and as soon as it is finished the crews will install gas systems at Ryley and Holden. The entire propect includes 77 miles of main line from the field to Edmonton, 96 miles of distribution pipe in Edmonton, and 13 miles of pipe in the Viking Field, with 10 miles in smaller towns. Gas has been delivered to the town of Viking for several weeks.

MORE GAS FOR OHIO TOWNS

ADA, Ohio, Oct. 15.—Better gas service is promised Ada and nearby towns buying natural gas from the Central Ohio Gas Co., formerly the Medina Gas & Fuel Co., following the purchase by the Central Ohio Gas Co. of the entire output of the Roundhead Field in Hardin County. Construction of a line from the wells to the main line of the company will begin at once, and will be completed before cold weather, company officials say. This is the line that runs from the Central Ohio Field to Lima, St. Marys and other western Ohio towns. Some very good wells have been drilled in recently in Hardin County around the town of McGuffey as well as near Roundhead.

NEAR GAS FORMATION

CORDELL, Okla., Oct. 15.—The Santrock Drilling Co. is near a gas formation at about 1,475 feet in a test being drilled on the Montgomery farm in the northwest quarter of Section 23-9n-17w, a few miles south of Cordell, in Washita County. The casing is frozen in the redbeds and gas from below is exuding through 50 feet of slush and mud.

ANOTHER PIPE LINE IN MOREHOUSE PARISH

SHREVEPORT, La., Oct. 15.—Right-of-way has been granted through Morehouse Parish and will be issued by the Ouachita Parish police jury for construction by interests headed by Henry C. Morris, trustee, of another pipe line from the Morehouse area of the Monroe gas district to supply fuel for the industrial center at West Monroe and which will later be extended to supply towns along the line of the Vicksburg, Shreveport & Pacific Railway, including Ruston and other points between Monroe and Shreveport.

The Dallas Gas Co., represented by the Morris interests, began operations about two years ago in the Monroe gas area and maintains its office headquarters at Bastrop. Starting near that point they will construct 30 miles of pipe line for the purpose, among others, of supplying the $1,000,000 Brown Paper Mill, which is about to start construction near West Monroe by Orange, Texas, capitalists.

The Morris interests control 100,000 acres through lease, of which half has already been proved productive and is affiliated with the General Construction Co., the Independent Production Co., the Morehouse Natural Gas Co., the U. S. Carbon Co., controlling an estimated daily production of 200,000,000 feet of gas, and also with the Excelsior Pipe Line Co.

Construction of the new line will take place this winter and it is expected that it will be ready to serve the public by June, 1924.

CHICKASHA TO VOTE AGAIN

OKLAHOMA CITY, Okla., Oct. 15.—Ralph Day and associates of Oklahoma City have applied for a natural gas franchise at Chickasha to install a plant and lay a pipe line to utilize gas from the Grady County Field. A domestic rate of 42 cents would be provided, Day says. The mayor has called for an election to be held on October 19 to submit the proposed franchise to the voters. The Chickasha Gas & Electric Co., which has a franchise, also proposes to pipe gas from the Grady Field and sell it at 42 cents. A proposition to issue $225,000 of bonds to install a municipal gas plant in Chickasha recently was defeated at the polls.

ARKANSAS VALUATION DISPUTED

LITTLE ROCK, Ark., Oct. 15.—The proposition of the Arkansas Natural Gas Co. to supply gas to Little Rock consumers at 60 cents per 1,000 feet was not accepted by the executive committee of the Arkansas Gas Consumers Association which met recently in Little Rock to consider it. The committee made a counter proposition on a basis of a 55c charge and announced if this were not acceptable the association would go to court. Officials of the association charge the gas company's valuation of $8,000,000 which was the basis for fixing the rate, should have been placed at $6,000,000.

NEW GAS WELL IN N. Y. STATE

The Republic Light, Heat & Power Co., a natural gas subsidiary of Cities Service Co., in Northern New York State, recently struck gas at about 3,300 feet near Forestville, N. Y., in the Arkwright Hills. When gauged, this well showed an initial production of 2,250,000 feet per day. The Republic company has drilled five holes in the Arkwright Field and has obtained five producers.

GAS FOR COOKING ONLY

CHATHAM, Ont., Oct. 15.—In the Niagara gas fields of Ontario, the Provincial Natural Gas Co., supplying Bridgeburg, Fort Erie and other places, has notified its patrons that natural gas must not be used for other than cooking purposes owing to shortage of supply.

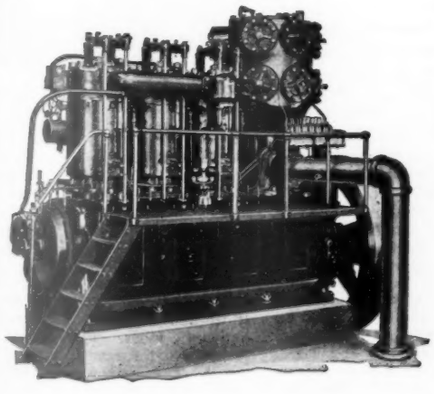
"The Valve With a Leg to Stand On"

Any Size = Any Pressure

Good Pipe Line Construction Includes Westcott Valves

Manufactured By **Westcott Valve Company, Inc.** Seneca Falls N. Y.

The Reeves Vertical Gas Engine—Compressors For Gas Booster Plants



Engine Sizes:
40 H. P. up to 250 H. P.

Engine-Compressor Sizes:
60 H. P. up to 160 H. P.

A few of the reasons why leading companies and engineers are purchasing the Reeves Gas Engines and Compressors.

They know the Reeves unit is not an experiment, having proven its reliability and worth over a period of about twenty years successful service.

Account of the simplicity of operation; low fuel and maintenance cost per horse power. One user just reported having operated last four units 16 months without shutdown.

All Compressors equipped with "Hope" Biplane, Patented, easy operating, high speed Valves.

Saving in installation time partly pays for unit.

Saving in plant construction cost from 20 to 50%, depending on location.

Branches Pittsburgh, Penna Tulsa, Okla. Casper, Wyo

HOPE Engineering & Supply Co. Mt. Vernon, Ohio, U.S.A.

Consulting and Contracting Engineers in Natural Gas and Oil.

warrant the line being kept intact.

Bonnie Doon. The gas system for the

through 50 feet of slush and mud.

ing purposes owing to shortage of supply.

EQUIPMENT AND SUPPLIES

ELECTRIC METER FOR FLUE GAS PERCENTAGE

The Brown Instrument Co. of Philadelphia is now marketing a new C02 meter which measures electrically the percentage of C02 in flue gas. This instrument works on the principle of the difference in thermal conductivity of various gases instead of the principle of chemical analysis.

The principle of the difference in the thermal conductivity of various gases has been known for some time, but not until recently has any commercial use been made of it. While this type of instrument has been developed abroad and a few imported instruments have been sold in this country, the Brown Instrument Co. is said to be the first American manufacturer to produce equipment of this nature.

The attention required for the operation of an instrument based on this new principle is reported to be very small.

The new electrical recorder permits the indicating and recording of the percentage of C02 at any distance from the boiler, in the case of flue gas analysis, and a combined instrument will show both the temperature of the flue gas and the percentage of C02 on one chart. This instrument shows the percentage of C02 continually and not the results of a sample.

EXPOSITION LIGHTING FEATURE OF BIG SHOW

The lighting of the International Petroleum Exposition and Congress was the subject of much notice. The illumination of all the main entrances and courts was part of the general display of Pyle-O-Lights, of which some 40 were distributed around the exposition grounds by the Pyle National Co., of which C. T. Tewkesbury, of Tulsa, is special representative, and most favorable comments were made regarding this feature, and numerous requests were made from individual exhibitors for Pyle-O-Lights for special illumination of their booths.

The advantages of Pyle-O-Lights for oil field illumination was favorably commented upon b yall, and the display of the various types of floodlights at their booth was of more than general interest, as their rigid construction and light weight adapts them to every phase of floodlight illumination.

The Pyle National Co. also operated a marine type of searchlight from one of the 85-foot derricks located in the exposition grounds.

A sectional type E generator, on display at their booth, proved very instructive and educational to the many users, and two Pyle National E generators in actual operation at other points in the exposition grounds demonstrated the reason for its popularity in the oil fields and industrial service.

EQUIPMENT USED IN DRILLING EXPO. WELL

One of the most interesting and instructive exhibits of the International Petroleum Exposition and Congress was the drilling of a well in the middle of the street. The latest equipment was in use on this well, in charge of Robert O'Brien. A structural steel derrick, 80 feet in height, an entirely new type of steel bull wheels, with V-shaped groove and posts equipped with roller bearing boxes, were furnished by the Rig Equipment Co., Sand Springs, Okla., who are representatives for the O'Brien Steel Construction Co., Washington, Pa.

The Parkersburg Rig & Reel Co.'s patent sand reel was used, and motive power was furnished from a two-motor type Westinghouse equipment, Twana hair belts driving the band wheel.

Burns' temper screw with special attachment for turning, designed by Milo Guthrie, was used, the new type wire line spool being furnished by George Bell, American Steel & Wire Co. The Adjuster control head and oil saver were furnished by the Oil Well Improvements Co., and the tools by the Western Supply Co.

STEEL MARKET REPORTED SLUGGISH; SLIGHT INCREASE IN BOOKINGS

By B. E. V. Luty

PITTSBURGH, Pa., Oct. 15.—Production of steel ingots in September is reported at 3,313,354 gross tons, against 3,677,771 tons in August. Allowing for the number of working days, there was a decrease in the rate of 2.70 per cent, against a decrease of 3.06 per cent from July to August. In other words, production, instead of decreasing more and more rapidly, is decreasing less rapidly. The highest point in production was reached late in April, and the September rate now reported is just equal to the rate of last December, showing that the decrease has been at a slower pace than the increase. Production of finished rolled steel is about 75 per cent of the ingot production, the 25 per cent loss being in scale and scrap, eventually recovered, and figuring over again later in the ingot production.

In most quarters the steel market is described as being more sluggish than a week ago, but in some quarters there is reported a slight increase in the volume of bookings. All such changes are of minor importance since consumers are buying from hand to mouth according to requirements, and a few moderate sized orders will make quite a difference in a mill's showing.

Consumption High

In many lines the consumption of steel has decreased but little if at all and only in a few lines has there been much decrease. Steel production now may be estimated at about 18 per cent under the recent peak rate, and as any consumer would be desirous of liquidating stocks at this time, when new deliveries are so easily obtained, the actual consumption is obviously at a high rate.

Finished steel prices, in general, have been maintained right along at the level reached last April. There have been some slight irregularities, but on the whole these are less prominent than a week ago. Bars, shapes and plates were being shaded in eastern Pennsylvania, but are now reported firm, while bands, hoops and strips have firmed up. Sheets, on the other hand, present more appearance of softness. In black sheets there has been shading for more than two months. There is not much more sheet tonnage being sold at cut prices than a fortnight ago, but there is much less, almost none, being sold at full prices.

Oil Country Goods

Pipe mills report that demand for oil country goods has declined to almost nothing. This was fully expected, and indeed the bookings of the past six months were larger than had been counted upon. A moderate volume of demand is expected in spring. No line pipe inquiry of any consequence has come out, but there is a theory that when mills become anxious for tonnage and will make close prices on line pipe that some latent projects will be revived.

Pressure upon pipe mills for deliveries of full weight or merchant ippe have increased. Jobbers have no stocks and have a good demand for the immediate future while they seem to be doubtful whether there will be any business 30 days from now, hence, they are anxious to get all deliveries on their orders at once. There is scarcely any new buying.

Tin plate is inactive, but the mills seem to be comfortably filled with business for the remainder of the year. Production in the first nine months of the year may be estimated at between 28 000,000 and 29,000 000 base boxes, indicating that this year's total will break the high record, made in 1917.

APPOINTED TREASURER

Richard W. Yerkes, formerly general manager of the Link-Belt Co.'s Philadelphia plant, has been appointed treasurer of the Link-Belt Co., succeeding B. A. Gayman. Mr. Gayman was selected by Charles Piez, president of the Link-Belt Co., to head the newly acquired Meese & Gottfried Co. of San Francisco. The new company will operate under the name of Link-Belt Meese & Gottfried Co., San Francisco.

Mr. Yerkes will be located at the Link-Belt Co.'s general offices at 910 South Michigan Avenue, Chicago.

SWING LINE BOOKLET

A recent booklet issued by the Oil Conservation Engineering Co., of Cleveland, Ohio, describes the swing line equipment put out by this concern. The list includes attention to the Oceco double flange collars, swing joints, cable sheave brackets, safety tank winches and cable connections.

CHICAGO COMPANY BUYS PACIFIC COAST FIRM

Charles Piez, president of the Link-Belt Co., Chicago, announces the purchase of the Meese & Gottfried Co., of San Francisco, Los Angeles, Seattle and Portland. For the past 10 years the Link-Belt Co. has been distributing its products on the West Coast through its subsidiaries, the Link-Belt Northwest Co., of Seattle, and the Link-Belt Pacific Co., of San Francisco.

Meese & Gottfried Co., and its predecessors, have been manufacturers of power transmission machinery on the coast for more than 40 years, and were favorably known from the Canadian to the Mexican border. It is the intention of the new owners to add to the facilities and enlarge present stocks, so prompter service to its customers will be insured.

The new organization will be known as the Link-Belt, Meese & Gottfried Co., with headquarters at San Francisco.

CLAIMS ASKED ON LUCEY CO.

The Creditors' Protective Committee of the Lucey Manufacturing Co., in a circular letter to holders of the 10-year 8 per cent convertible notes of the company, urges them to deposit their claims under the protective agreement in order that readjustment of the company's affairs may be hastened. Charles W. Weston, vice president of the Metropolitan Trust Co., is chairman of this committee.

REAMING DISC BIT TESTED IN POWELL

Considerable interest has been aroused among operators in the Powell Field, Texas, by a new reaming disc bit patented and developed by the Hughes Tool Co. of Houston, Texas. This bit is used for drilling formations too hard to be penetrated efficiently with the fish-tail bit, but not hard enough to permit satisfactory operation of the rock bit.

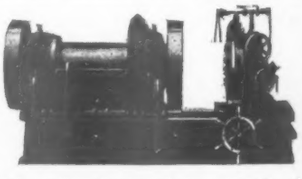
The Austin chalk is encountered at Powell at a depth of about 2,000 feet and is approximately 400 feet thick. While it is possible to drill this chalk with a fish-tail bit, it is so tough in some wells that this too will only make two or three feet of hole. Moreover, the fish-tail must be crowded to cut this formation, which results in many fishing jobs, one operator twisting off 12 times before completing the chalk, and four or five twist-offs being not uncommon.

The Hughes reaming disc bit, it is reported, will make 30 to 50 feet of hole per set of discs in this formation at the rate of 5 to 10 feet per hour. There is a noticeable absence of vibration when running the disc bit, and consequently the danger of damaging the drill stem is greatly reduced. Tests are said to have demonstrated that the reaming disc bit drills a straight full gauge hole, and that the increased drilling speed more than compensate for the higher cost of his bit.

While the Hughes reaming disc bit has only recently been placed on the market, shipments have already been made to California, Oklahoma and foreign fields.

THREADING EXHIBIT ATTRACTS ATTENTION

Several excellent features were made apparent to pipe men who inspected the Landis Machine Co.'s exhibit at the

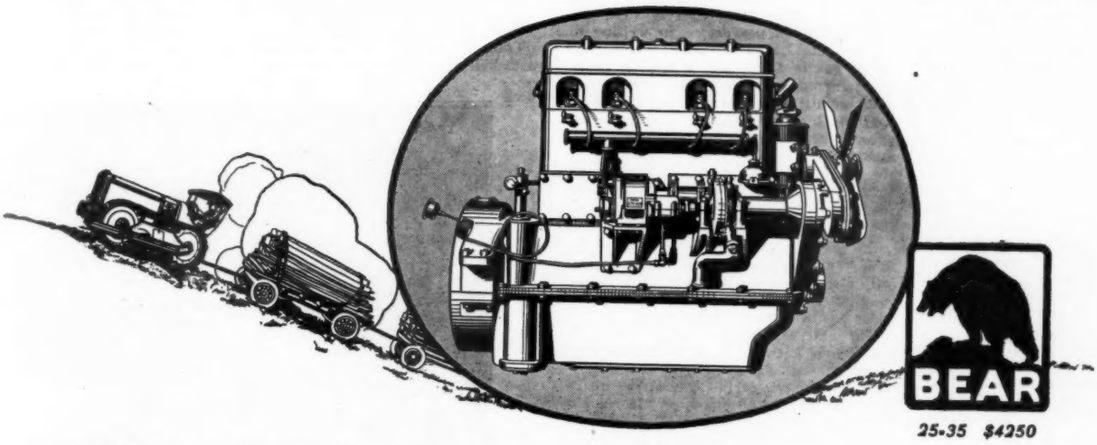


International Petroleum Exposition & Congress in Tulsa last week. The machine in operation was threading 8¼-inch, 17-pound casing, threaded 10 to the inch, with a ⅝-inch taper and 3¾-inch length of thread. The actual threading time was 2½ minutes, with a speed of 30 circumferential feet per minute.

Eight chasers were placed in the die head, which was made entirely of steel and was manually operated, locking in the open and closed positions. The machine had a quick power traverse forward and backward for carriage, with automatic stops. The reaming tool was locked and the reamer was fed by hand wheel. The drive was by gears of steel, with bronze bearings, which ran in an oil bath. The weight of the machine was 14,000 pounds.

In cutting the threads the chasers were placed in tangential position to the pipe, reducing friction and permitting high speed. The chasers have a variable rake angle, permitting grinding to suit the material threaded. Dull chasers may be ground to cutting edge on an emery wheel without annealing, rehobbing or retempering. Chasers are made of high speed steel, can be replaced individually, and one set of chasers will thread any diameter as long as the pitch and taper remain constant.

The Bear Tractor



25-35 $4250

This Engine's Performance Has Never Been Attained by Any Other Engine of Its Class

HERETOFORE, it has been customary to measure the obtainable power in tractor engines almost exclusively by the bore and stroke. To obtain more power the general practice has been to increase the size rather than to secure *more* power from the *same* size engine.

But in the case of the Bear Engine, as with airplane engines, greater power has been obtained through higher volumetric efficiency. After years of careful work we have developed a four cylinder heavy duty engine of 462 cubic inches displacement which develops from 60 to 70 horsepower over long, continuous runs, with a maximum of 81 h. p.

On block tests, Bear Engines developing 69 horsepower at the start were developing 71 horsepower after running continuously for 12 hours without a change in adjustment. And after long, hard service in actual operation these engines continue to develop practically 100% of their original horsepower.

The extremely high thermal efficiency of the Bear Engine is shown by the fact that only .5 of a pound of fuel per horsepower hour is required at full load and a trifle less than .6 of a pound at half load. Bear Tractors are operating 10 hours per day over long periods under full load (which is greater than the rated load of the tractor) on 2.8 gallons of gasoline per hour.

To the tractor user, this Bear Engine performance means economy—*lower cost* for work done, whether the job be building and maintaining highways, removing snow, hauling logs, freighting in oil fields, pulling farm implements or doing any other tractor work.

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The Tractor that Delivers its Power to the Drawbar

The Parkersburg Rig & Reel Co.'s pat-

connections.

Co., is chairman of this committee.

main constant.

New Mexico Sale Brings Navajos $83,500

Highest Price of First Auction Sale, Paid by Gypsy Oil Co., $46,000 for 4,000 Acres on Table Mesa Structure

SANTA FE, N. M., Oct. 15.—The first auction sale of Navajo Indian reservation leases held here today in the Federal Court room brought to the tribe $83,500 in bonuses.

The highest price of the day was paid by the Gypsy Oil Co., $46,000 for 4,000 acres on the Tocito structure. J. O. Bailey, of Denver, Colo., paid $17,500 for 3,200 acres on the Table Mesa structure; Neill B. Field, Albuquerque, N. M., $1,000 for 4,800 acres on the Beautiful Mountain structure and the Metropolitan Oil Co., $1,000 for 4,080 acres on the Rattlesnake structure. The above are all wildcat tracts.

Group 2 consisted of tracts not exceeding 640 acres on the Hogback structure adjacent to the area owned by the Midwest Refining Co., on which that company has two wells producing high grade oil.

Of the tracts offered the following were sold:

Tract 10, north half and west half of southwest quarter of Section 12-29n-17w, 400 acres, J. C. Thurman, Del Monte, Calif., $5,100.

Tract 15, north half of Section 26-29n-17w, and west half of Section 35-29n-17w, J. O. Bailey, Denver, Colo., $6,500.

Tract 8, Section 6-29-16w, S. C. Munoz, New York, $2,000.

Tract 7, Section 2-29-17w, S. C. Munoz, New York, $1,800.

Tract 14, Section 22-29n-17w, W. R. DeHart, Aztec, N. M., and Harry Johnson, Los Angeles, Calif., $1,000.

Tract 17, east half of Section 34-29-17w, and west half of Section 35-29n-17w, Franklin A. Wagner, New York, $500.

Tract 18, east half of Section 36-29n-17w, southwest quarter of, and the south half of northwest quarter of Section 31-29n-17w, E. W. Waddell, Okmulgee, Okla., $600.

Tract 9, Section 10-29n-17w, Franklin A. Wagner, New York, $500.

Col. E. Walters, of Skeedee, Okla., who has conducted all the auction sales of Osage Indian leases at Pawhuska, Okla., was the auctioneer in charge of the Navajo sale. He was introduced to the crowd that filled the court room by Charles H. Burke, United States Commissioner of Indian Affairs. One of the interested spectators was Cheedodge, president of Navajo grand tribal council.

Terms of Sale

According to the terms of the sale at least two wells on each exploratory lease are required. The first shall be drilled at or near the apex of the dome at a point to be agreed upon by the officer in charge for the Secretary of the Interior and the lessee, and with an approved standard rig to test all possible producing sands to a minimum depth of 3,000 feet unless oil or gas is found in paying quantities at a lesser depth. In case oil or gas in paying quantities is encountered in the first well at less than 3,000 feet, the lessee shall drill a second well with a standard rig at or near the apex of the dome, in order to test any sands which may be encountered below those encountered in the first well and to a minimum depth of 3,000 feet unless the Secretary of the Interior grants permission in writing to cease operations at a lesser depth. If oil or gas is discovered in paying quantities in one or both of the wells at or near the apex of the dome, then the lessee shall drill a third well at a point to be agreed upon approximately 200 feet, structurally speaking, below the apex of the dome, for the purpose of testing the lowest producing sands encountered in the well or wells drilled near the apex of the dome.

All wells on exploratory leases shall be drilled with a standard rig, and begun with a casing of not less than 15½ inches in diameter, which shall be properly cemented to exclude surface water.

The first exploratory well on each of the Group 1 tracts is to be commenced within 90 days after approval of the lease by the Secretary of the Interior.

In the case of Group 2, or "Hogback" leases, at least one well shall be drilled on each lease to the depth of 2,500 feet unless oil or gas is encountered in paying quantities at a lesser depth and within 12 months from the date of approval of the lease. Should the first well be nonproductive, the lessee shall, within the next succeeding year, drill a second well to the same depth, unless oil or gas is found in paying quantities at a lesser depth. The Secretary of the nIterior may, in his discretion, upon application of the lessee, extend the time within which any well shall be drilled, on the payment of the annual rental of $1 per acre for each whole year the completion of such well is delayed.

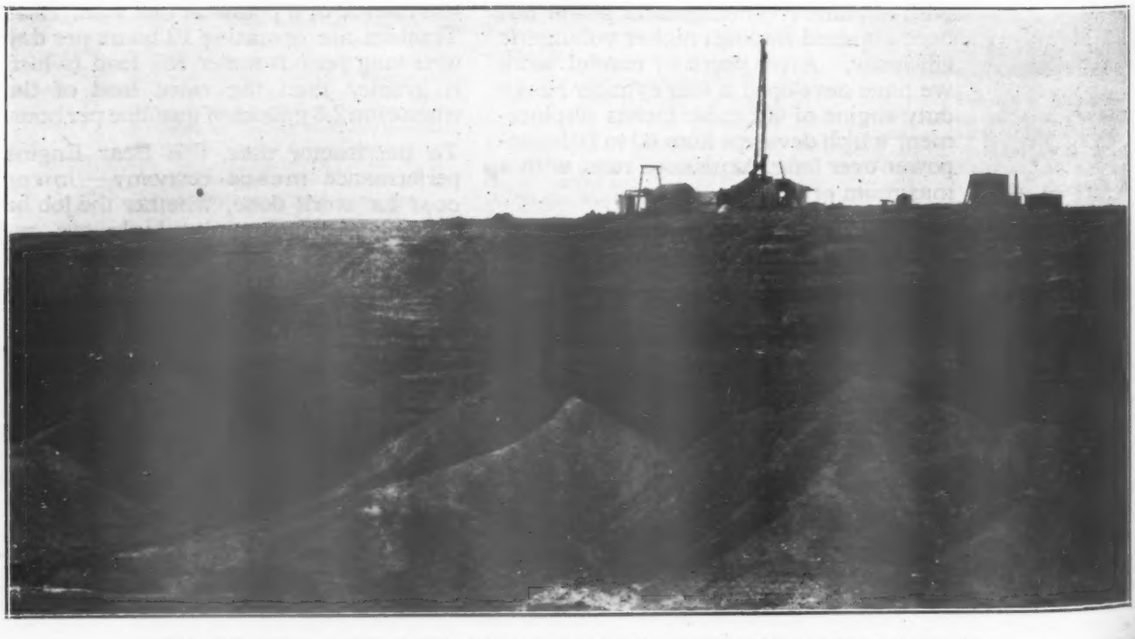
Ten Tracts Passed

Tracts in Group 2 that failed to find a buyer were:

Tract 1, Section 24-30n-17w.
Tract 2, Section 20-30n-16w.
Tract 3, Section 26-30n-17w.
Tract 4, Section 30-20n-16w.
Tract 5, Section 36-30n-17w.
Tract 6, Section 32-30n-16w.
Tract 11, Section 8-29n-16w.
Tract 12, Section 16-29n-17w.
Tract 13, Section 14, the west half, the west half, east half and west half east half east half, Township 29n-17w.

Tract 16, Section 20, the southeast quarter; Section 29, the east half and southeast quarter of northwest quarter; east half southwest quarter and east half southwest quarter of southwest quarter, Township 29n-16w.

NEW MEXICAN WELL AROUND WHICH 640-ACRE LEASES WERE SOLD



Midwest Refining Co. well No. 1 Hogback Structure, Navajo Indian reservation, San Juan County, New Mexico

A Field Superintendent for

A PROMINENT OIL COMPANY

came into our shop for a few repairs the other day.

He Said: "This Power was installed in 1919 and these are the first repairs I have bought. I have three other makes of Powers in my district and they all cost more for repairs than the

DURNELL UNDERPULL"

He also made a voluntary statement: "The wood rim is easier on belting; the belt lasts longer than on any of the others."

UNION MACHINE COMPANY

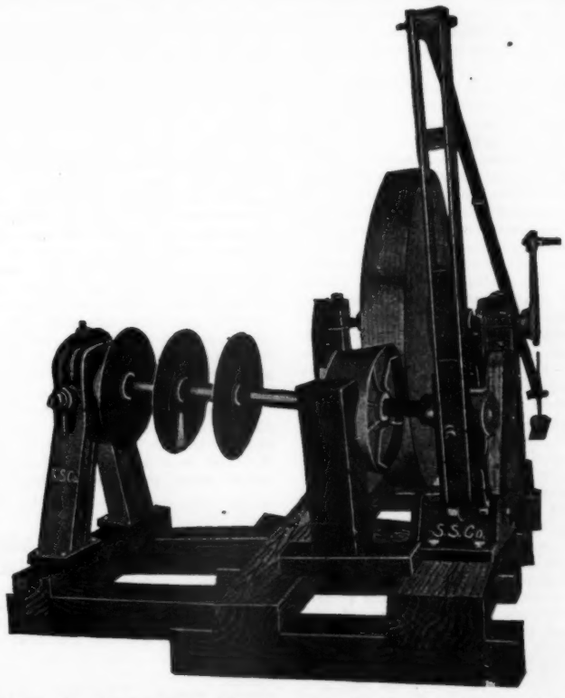
BARTLESVILLE, OKLAHOMA

Your Rig is Not Complete

Unless You Are Using the Shaffer "ALMETAL" Sand Reel Support

For any type sand reel without changing standard equipment.

Reduces expense of operating and costs less than any other device. Saves band wheels, sand reels, lines, pipe, money.



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Motorists Gain By Gasoline Research

But Congress, Hostile to the Industry, Blindly Blocks Work by Cutting Appropriations in Half.

By Charles E. Kern

WASHINGTON, Oct. 15.—When the oil industry wakes up and demands considerate treatment at Washington, legislators will cease to treat it as a renegade occupation. In Senate and House of Representatives any member who introduces a bill hostile to the men engaged in the production and refining of petroleum will receive attention and when he denounces the industry generally he is sure to have an attentive audience. His denunciatory statements are carried to every section of the country and few Senators or representatives show any courage of conviction by standing up for the producers and refiners for fear they may be pointed at as friends of petroleum which, for some unknown reason, they fear as a boomerang to be hurled back at them on election day.

Another instance of the manner in which this policy is working against the industry has come to the attention of the writer and realtes to the case of investigations relating to fuels, lubrication and the internal combustion engine by the United States Bureau of Standards. These investigations are really of more service to the automobile industry than they are to the producers of petroleum but for some unexplainable reason Congressional indifference is now starving out these efforts to promote the interests of the industry by a careful scientific determination of various elements that cannot fail to add to the value of petroleum.

Ten Per Cent Gasoline Gain

While the Bureau of Standards does not engage in invention, it does investigate many questions that are of the utmost interest and assistance to inventors, and its work in that respect, bearing upon fuels, lubricants and the internal combustion engine, have already resulted in some notable achievements. For instance, after a long series of experiments with gasoline the investigators came to the conclusion that a grade of gasoline heavier than that which was placed on the market might be used with equal efficiency. After laboratory experiments had brought them to this conclusion, they tried it out practically on large batteries of cars operated by the Government in Philadelphia and Pittsburgh, and demonstrated the soundness of their position. The result was a change in Government specifications for gasoline so as to make it possible to increase the amount of gasoline available by about 10 per cent annually, which amounts to 700,000,000 gallons. This resulted in only a slightly heavier gasoline, equally efficient with that which was previously required by Government specifications, so that during the present year purchases for all Government uses have been made upon this basis. As is well known the Government is extremely exacting in the matter of its supplies and Government specifications practically control all purchases for private purposes.

Fifty Scientists at Work

Engaged in this work are about 50 scientists who are so capable that their services are constantly being called for in private concerns at larger salaries. There have been very small direct appropriations to foster these valuable investigations which have been carried on largely by means of funds appropriated for other departments, and turned over to the Bureau of Standards for use in specific investigations which these other departments require. Their work is directed toward additions to present knowledge in respect to fuels, lubricants and the internal combustion engine. Anyone who wishes to devote his attention to any of these matters will find in the mass of carefully determined facts now a part of the records relating to this work, information that will solve many of his problems and put him on the high road toward success in making improvements.

The study of fuels has simplified knowledge in respect to those power generating agents. The problem is a tremendously big one. There are something like 13,000,000 automobiles in this country, and a couple of million more scattered throughout the world. In the United States alone we have over 7,000,000,000 gallons of gasoline being used yearly. In this connection an interesting calculation has been made comparing this enormous volume of gasoline to the volume of water that goes over Niagara Falls.

Supreme Motor Fuel

The essential element of gasoline, and crude oil generally, is that it has more heating value than any substitute that anyone has been able to propose, and that fact places it above all natural products as the most valuable motor fuel known to man. It has more energy per pound than any explosive, including nitroglycerin, gunpower or any other of the much-heralded products. The amount of heat per pound is what gives power, because power comes from heat in the fuel. Alcohol and benzol have less heat per pound than gasoline and alcohol and benzol up to this time are the only substitutes which in view of their production possibilities are comparable with gasoline, and as the benzol production of the country amounts to only about 5 per cent of the gasoline production, it is not a vital economic factor for an increase in the gasoline supply. Alcohol and benzol have lower heating value per pound than has gasoline, if they are considered from the point of view of the quantity of energy per cubic foot or unit volume of the explosive mixture. In other words, alcohol and benzol are not at all likely to figure as substitutes for gasoline so long as gasoline is available in anything like the present quantities.

This very brief and cursory statement may be found elaborated in the records of the Bureau of Standards, so that would-be inventors experimenting in artificial fuels might save themselves a vast amount of costly experience by having access to this great fund of knowledge.

Gasoline "Pills"

The Bureau of Standards has examined probably 60 samples of "pills" that have been put upon the market for the purpose of increasing the efficiency of gasoline. It has become a by-word among those who are familiar with these experiments that whenever one of these "pills" smells like moth balls or naphthaline they add nothing to the fuel. The interesting fact is that most of these "pills" do smell like moth balls. But these alleged improvers of gasoline are generally sold with directions respecting the adjustment of carburetors, and so far as they encourage their users to look after carburetors, thew will add to efficiency. The fact is, the virtue of gasoline lies in its vaporizing quality. No liquid burns; it is only the gas that is generated that burns, and the superiority of gasoline for internal combustion engines over fuel oil or any other product of gasoline, is merely its vaporizing quality. If fuel oil could be caused to vaporize so that the gases could be as readily ingnited as are the gases of gasoline, then it would be just as available for internal combustion engines as is gasoline itself. In fact any substance that could be turned into a vapor readily could be used for the same purpose. The important fact is that gasoline is the only substance known to science, if we except the lighter products of petroleum, that exists in large quantities, and that has the explosive power to make it available for these purposes. This does not mean there is no substance that might not be utilized if some inventive genius should discover a way to vaporize it so it would possess sufficient explosive power. However, it is a fact that there is not now known any radical improvement that promises to be a substitute for gasoline nor is there known any radical improvement in the internal combustion engine that promises great power. There are many requirements, however, both in the use of gasoline and in the construction of the internal combustion engine that do promise greater efficiency. In the first place, a great deal of the gasoline that goes into the tank is never vaporized and exploded. It is lost through deficient ignition and this is one of the studies being made by the Bureau of Standards.

For the Public Gain

If the people of the entire country could only understand that they are the ones that will gain the advantage of more perfect methods of automobile operations, they would join forces in seeing that these investigations are pursued vigorously and that Congress should make sufficient provision to care for them. While gasoline is unequalled for motive power it is fully believed it could be more efficiently utilized if continued scientific study is directed toward perfecting the details in the use of the gasoline and the engine. Experiments that have been completed show that the efficiency of the internal combustion engine of the kind in use in automobiles in this country today, is not much greater than 5 or 6 per cent, whereas these engines should give from 30 to 40 per cent of efficiency.

In other words, it is believed to be within the realm of possibility that less efficient engines may be replaced by engines that with a proper use of gasoline would produce five or six times the efficiency now attained. It is only by an accumulation of exact knowledge through experiment, that can only have its origin in the laboratory, that this result can be brought about. It is not practicable for private concerns to take upon themselves the great expense of doing this work for the benefit of the entire industry. It is essentially a Governmental function. In spite of these facts, the appropriation for this work was last winter actually cut in half because it was asserted it was the sort of work that ought to be done by private concerns. Some wise statesmen declared there should be more business in Congress and less Congress in business. That had a very nice sound at home, but its effect was to assist in strangling some of the most important investigations for the oil industry as well as for the automotive industry that have ever been undertaken.

These are matters that the industry should consider. It is well known that a great many of the leading minds connected with the American Petroleum Institute are thoroughly in sympathy with the general ideas here expressed. It is to be seen whether continued indifference toward the industry in Congress is to control these appropriations or whether Congress will be inclined to lend its hand in constructive work, rather than to confine itself to an attitude of hostility. To the practical oil man in the field, the sort of constructive aid for the industry that is here briefly outlined may not appear important, but in a broad sense some of the most able minds in the industry consider these studies of gasoline and of the internal combustion engine as having a most important bearing upon the future of the industry which they hope to bring upon the highest possible plane of efficiency.

MEXICAN OIL STORAGE INCREASED IN AUGUST

NEW YORK, Oct. 13.—Storage of light and heavy crude oils, topped and distillates in the Tampico district August 1 totaled 19,555,583 bbls., an increase of 532,881 bbls. from July 1, when storage totaled 19,022,702 bbls.

Storage figures of the leading companies on August 1, compared with July 1, follow:

Company	So. Crude	Panuco Cr.	Topped Cr.	Distillate	Aug. 1 Total	July 1 Total
Corona	123,464	3,522,504	1,464,462	171,087	5,281,517	5,232,962
Mexican Eagle	475,922	373,754	2,625,679	1,130,723	4,606,078	4,200,388
Standard of New Jersey	294,356	1,356,742	435,588	.....	2,085,686	2,013 054
Mexican Petroleum	653,145	108.183	559,509	718,993	2,039 830	1,669,983
Mexican Sea	773 200	140,213	.....	.....	913,413	841,276
Texas	132,301	337,245	191,281	41,941	702,768	839,449
Con. Mex.	382,061	6,721	137,012	22,777	584,572	581,951
Magnolia	.....	462,814	.....	.....	462,814	524,346
Penn Mex	460,670	.....	.....	.....	460,670	307,631
Pierce	109,938	56,244	206,822	47,890	460,894	438,622
Sinclair	.....	310,944	.....	.....	310,944	498,682
E. Coast	.....	416 838	.....	.....	416,838	416,838
M. Gulf	154,330	137,036	.....	.....	291,366	145,618
Atl. Gulf	191,657	.....	55,570	1,717	248,944	332,607
Atl. Lobos	101,908	.....	.....	.....	101,908	210,720
Empire	.....	84,426	.....	.....	84,426	239,648
Isld. Oil	28,618	.....	.....	.....	28,618	36,131

R. R. TO RUN GASOLINE CARS

BEACON, Mass., Oct. 15.—A new type of gasoline-driven railroad passenger railroad passenger car is being tried out by the Central New England Railroad to haul passengers from Beacon to Pine Plains in the first step taken to do away with steam locomotives on the railroad. The company has two new cars. One is all passenger space and will carry 60 persons. The other is a combination baggage and passenger car and has a seating capacity of 45 persons. They will operate over the section of the road from Beacon to Pine Plains, a distance of 45 miles.

Expounds Theory of Fish Origin of Oil

University of Pennsylvania Scientist Furnishes The Oil and Gas Journal With Exact Statement of His Reasoning.

By John M. MacFarlane
Of the University of Pennsylvania

Fishes and petroleum oil are seldom thought of together. But when the history of each is fully understood the two stand revealed as cause and effect. Such a view by no means is entirely novel. Almost 100 years ago the well-known Scotch geologist Murchison noticed that dull brown-black shale beds, which he tramped over with fellow-geologists, covered wide areas in Austria and Russia. The shales smelled of petroleum, and yielded it, but also were often crowded with myriad millions of fish remains. So he wisely suggested that the countless shoals of fishes, somehow entombed in these oily shales, probably were the real source of the surrounding petroleum.

Like views have often been expressed since by some of our American geologists. For as Woodruff, Schultz and others surveyed the thick beds of oil shale that cover large areas in Wyoming, Montana, Colorado, and near-by States, they noticed often the prodigious quantity of fish scales, spines and teeth enclosed. So they hazarded the idea that the oil and the fishes were probably related to each other, in Canada, too, the rich Albert oil shales, and the even richer albertite, were closely associated with myriad masses of fossil fishes.

Steps Described

In spite of such observations, geologists and biologists failed to realize their importance. They did not attempt to build up the steps that would have furnished conclusive evidence. Our purpose now will be to describe these steps, and then fit them together. It is just cause for satisfaction to learn that the steps have been taken by scientists of these United States. For American chemists, geologists, paleontologists and biologists have shared in the effort. The four main steps we can only discuss now.

First, the question may well be asked —Where did all the fishes come from that could furnish even a small part of the oil used throughout the world in the last 75 years? Here it should be clearly pointed out that again and again, in the world's history, terrific and cataclysmic earthquake action, volcanic explosions, and thick volcanic dust deposits have changed the world's face, and exterminated whole groups of plants and animals. So all through the successive geologic formations, from the silurian beds to those of recent days, oil shales enclosing abundant fish remains are met. Oldest of these are some of the deposits in northern States. West Russian and north Scottish. Younger are our Pennsylvania oil shales, with their myriad crushed remains of weird and extinct fishes. More recent are the Oklahoma beds. Then follow those of the central western States, also some of the Austrian, Italian and South American areas. The Californian, southern Texas, Mexican, Rumanian and Baku oil shales are relatively recent, though millions of years old.

Chemical Composition

We can now intelligently take our first step, guided by the studies of three renowned co-workers, Professors Spencer Baird and Brown Goode of Washington and Professor Atwater of Connecticut. On Goode's solicitation, Atwater, as a chemist, exhaustively studied the composition of American fishes. He showed that many, and especially the freshwater varieties, were rich in fish oil. The river lamprey, the salmon, herring, tunny, menhaden, or mossbunker, among others, store oil in the flesh. Some of the deeper sea fishes, like sharks, dogfishes and cod, though poor in flesh oil, store it abundantly in their livers. Thus one shark about 30 feet long may yield 25 to 30 gallons of oil. A large quantity of our American fish oil, however, comes from the menhaden, or mossbunker, which is about 12 inches long, swims in great shoals, and is lithe in movement, and greatly preyed on by larger neighbors, not least the bluefish.

Baird calculated that in one season the bluefish and other enemies devoured 1,000,000,000,000,000,000 mossbunkers. Now, if a mass like this were to be suddenly destroyed, heated and the oil separated, it would furnish more petroleum than the world already has used, or could use for many years to come. This gives us some notion of the teaming wealth of fish life along even our eastern coasts. But many of the known oil shale and fossil fish beds cover hundreds, or even thousands, of square miles. So the annual destruction of mossbunkers by their enemies in a season is insignificant, compared with the piled together remains that make up such fish beds. Here, then, is our first and important step in tracing the history of oil supplies.

Countless Fish Deposits

Second, our reader may next wonder how such countless multitudes of fishes became suddenly entombed. The recent Japanese earthquake, in which a great crack, or "fault," formed in the rocks of the sea floor off that coast, caused huge tidal waves and intense frictional heating. Often in the past history of the world such earthquakes have been accompanied by great volcanic explosions, by the vomiting out of millions of tons of molten debris, and by the shooting out of added millions of tons of impalpable volcanic dust. The last often has spread over may hundreds of square miles, and "penetrated even into the interior of watches and of closely fitted boxes."

Enormous shoals of fishes, therefore, have been destroyed again and again in a few hours. At times they were immediately buried in the showered volcanic dust. Their oil soon spread out into that dust, which, quickly setting or hardening, started an oil-shale deposit. Not a scale, tooth, bone or spine was displaced, as they quickly became sealed up in some of these deposits.

But more often the fishes floated as great shoals of dead carcasses, then they soon parted with their oil to surrounding waters, and in two or three weeks at most the skeletons or other hard parts, washed together and sinking, helped to form a marl deposit. Here it may be objected that escaped oil would float away and quickly be wasted. Study of this brings us to the third step in our inquiry.

Origin of Oil Shale

Almost half a century ago Professor Joseph Leidy, distinguished as anatomist, paleontologist, zoologist and botanist, showed that oil escaping from the Philadelphia gas works floated on the surface of the Schuylkill at first. But soon it mixed with abundant mud particles till these pressed down and sedimented the oil. Thus successive oily mud films suggested a commencing oil shale. This important, though apparently trivial, observation gave us the key to the formation of oil shales. And in recent years the Anglo-Indian geologist Stuart, by experimenting with Burmese oils, has fully verified Leidy's views and further extended them.

We reach now the fourth and a highly important step. Given a certain amount of fish oil, either free or already fixed as an incipient oil shale, how, it may be asked, is this transformed or split up into petroleum and numerous byproducts? Fish oil is a greatly more complex body chemically than petroleum or its derivatives. Professors Warren and Storer of the Harvard chemcial laboratories mixed a quantity of menhaden fish oil with lime, steamed and heated the whole until a temperature was reached, when the oil split up into a substance that had all the qualities of crude petroleum. This, on repeated distillation at increasingly higher temperatures, gave off "parcels of naphtha, benzol, xylol and other now familiar chemicals.

Formation of Pockets

In the mighty laboratories of nature, however, just such mixing, heating, distillation and accumulation have gone on over many parts of the earth's surface. And to effect these changes, earthquake or seismic disturbances, with resulting straining, upheaving, cracking fissuring and even overfolding of rock strata on one another, all conspired. Then frictional or volcanic heating and roasting of the oil shales with their fossilized fishes took place. The crude petroleum oil thus escaped into fissures, faults, or adjacent porous and spongy sands or sandstones, which became reservoirs, or "pockets" and "pools," in the language of the oil prospector. The so-called oil sands, therefore, in no way aided in the formation of their oil contents. These passed into them from the "producer" shales.

In practically every important country one meets either with oil shales that still retain their intrinsic petroleum supplies along with abundant remains of fossil fishes which yielded the oil, or if the shales have been exposed to intense heat, pressure and dislocation, the crude oil may have sweated out, and then, flowing along fissures and faults in the strata, reached some porous sandstone or cavernous rock, to accumulate there as an oil pocket.

Fossils as Proof

It was the former type with which the writer, then a freshman student at Edinburgh University, made the acquaintance well-nigh half a century ago. The region was the now well-known oil-shale area that extends from 12 to 30 miles west of the Scottish capital. To be lowered into the blackness of a shale pit, to hammer out by aid of a flickering oil lamp fossil plants, fishes and other animals in the shale, to see and hear the loaded wagons clattering past to the pit shaft, later to see this shale rock piled into huge roasting retorts, and soon thereafter to watch a steady stream of crude oil issuing from these, formed a vivid and lasting set of mental pictures.

As coal is the fossilized and hardened remnant of ancient plant life, so oil shale is hardened and compressed mud that enclosed the transformed oil of accumulated fish carcasses. The question is often asked, "How long will our coal and oil supplies last?" As to the oil, we would unhesitatingly say that the quantities still locked up in the earth's crust were enormous. In the last 75 years about 10,000,000,000 barrels of 42 gallons each have been secured for human use, but we are confident that this is a small fraction only of what will yet be obtained. The world is now consuming about 700,000,000 barrels annually.

Colossal though the above figures may appear, the earth's crust will long yield supplies from extensive beds that have been scarcely tapped, if at all. In these United States, over great areas of central Canada, along the eastern and western sides of South America, on the North African coast and in South Africa, in Persia, South Russia, Baluchistan, Assam, Burmah, many East Indian islands and in southeastern Australia, great reserves exist besides those that already are being utilized. And to locate these accurately and continuously over wide areas, an exact knowledge of certain geologic conditions is essential

Definite and recognizable fossil fish and oil shale beds must be traced in accurate and continuous manner over areas where they appear at or fairly near the surface. Outcroppings, for example, of the Mowry shale are now yielding increasing supplies in Wyoming, Montana and adjacent States. But the oil has been drawn only in a few centers, because there alone have prospectors hit on local pockets. Many others will yet be revealed. The western part of South Dakota promises great things if the Mowry shale be exactly located. This shale, continued up into Central Canada, has much to do with the celebrated tar sands of that territory. In like manner when the four superposed sets of fish and oil shale beds that yield the Baku, Kuban and Apscheron oils of south Russia and of regions hundreds of miles westward, are more accurately traced than now, a wealth of free oil as well as primary shale will be revealed.

Anticlinal Theory

Where such shales form part of the middle or higher zone of an upheaved and bowlike mass of rock, known to the geologist as an anticline, the likelihood of reaching free oil in pools is greatest. The upheaving, crumpling and frictional changes in the rocks insure roasting of the shales and escape of the crude oil. This important conclusion we owe to a distinguished American student of petroleum geology. It has helped greatly in guiding American prospectors to likely locations.

The fairly near proximity of igneous rock masses of later age than the deposited oil shales insures that the originally raw fish oil has been heated and steamed under pressure, and so split up into crude petroleum oil and related products, in the great analytic laboratories of nature.

But this third condition causes us to give a word of caution. At times in the world's history cataclysmic outpourings of hot volcanic rock have been so copious that pre-existing oil shales have been ignited at or near the surface. Then the oil has been burned out, and the spent oil-shale, containing traces of iron, manganese, copper chromium and other metals, has assumed a brown, red, yellow, pink or almost white color, that greatly remind one of the mounds of roasted and spent oil shale surrounding the mine heads in the mid-Scottish fields. They often impart striking color effects to the landscape, as in the mid-western States, in North Africa, or in northern India.

Different From Today's Fish

The fishes that gave rise in thir death to such abundant and important products were all different from those of today, for race after race was steadily blotted out by surrounding cataclysmic disasters. But a few always managed to survive, and these, with their descendants, gradu-

(Continued on Page 82)

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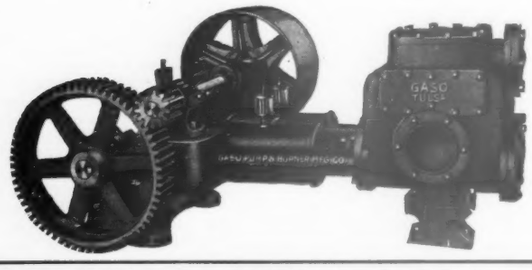

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for oil field uses

MEXICAN AUGUST SHIPMENTS FALL; PANUCO REACHES NEW HIGH LEVEL

TAMPICO, Mexico, Oct. 12.—Shipments of petroleum from Mexican ports of primary clearence during the month of August totaled 12,321,333 bbls., a decrease of 1,278,448 bbls. from the movement in August 1922. Of the movement last month, Tampico dispatched, 11,316,996 bbls; Port Lobos, 768,958, while Tuxpam cleared 235,379 bbls.

The volume of Panuco crude in the Tampico shipments reached a new high level some 6,868,408 bbls. of this heavy oil being included in the total above noted. The classes of oils dispatched were as follows: crudes, 6,463,242 bbls.; topped crudes, 4,534,381; distillates, 630,040, while bunkers, added to balance, totaled 693,670 bbls.

The movement in detail follows:

FROM TAMPICO

By Huasteca Petroleum Co.

(Mexican Petroleum.)

Aug.	Rig	Vessel and Destination—	Bbls.
2	Ss.	N. Bridge, Galveston ...	*41,595
3	Ss.	Oyleric, Southampton ...	*55,006
3	Ss.	O. D. Bennett, New Orleans	*46,377
4	Ss.	Montana, New York	*66,183
4	Ss.	Mexoil, Tampa	*14,589
5	Ss.	C.A.Canfield, New Orleans	*61,327
5	Ss.	P. H. Harwood, Boston ..	*62,805
6	Ss.	Fueloil, Tampa	*14,103
6	Ss.	H. G. Wylie, Galveston .	*41,995
7	Ss.	Sequoya, Constantinople..	*45,166
7	Ss.	Mirlo, Providence	**78,881
7	Ss.	Massasoit, New York	**46,184
8	Ss.	Mendocino, Montevideo ..	*53,029
8	Ss.	Mendocino, Beunos Aires	* 4,211
8	Ss.	N. Bridge, Fall River ...	*39,700
8	Ss.	Meline, New York	*64,784
8	Ss.	Panoil, Houston	*14,205
9	Ss.	C. E. Harwood, New York	*31,710
9	Ss.	Perfection, New York ...	*14,630
9	Brg.	Socony No. 85, New York	*24,907
10	Ss.	E. Walker, Portland	*64,101
10	Ss.	Satanta, Port Said	*43,479
11	Ss.	W. L. Steed, New York ..	*57,045
12	Ss.	H. G. Wylie, Galveston ..	*40,245
13	Ss.	Tecumseh, New York ...	**67,896
14	Ss.	Mexoil, Tampa	*14,503
14	Ss.	Panoil, Houston	*13,885
15	Ss.	O. D. Bennett New Orleans	*45,171
16	Ss.	C. A. Canfield, Rio Janeiro	*44,251
16	Ss.	C. A. Canfield, Rio Janeiro	** 7,857
17	Ss.	W. L. Drake, New York.	**73,015
18	Ss.	C. Anderson, New Orleans	59,323
18	Ss.	Fueloil, Tampa	*14,181
18	Ss.	G. W. Barnes, Boston ...	*58,922
18	Ss.	H. G. Wylie, Galveston ..	*41,406
19	Ss.	E. L. Doheny, Galveston..	*62,039
19	Ss.	Cerro Azul, New York ..	*71,035
21	Ss.	E. L. Doheny, New York..	*70,694
21	Ss.	Panoil, Tampa	*13,713
23	Ss.	Mexoil, Houston	*14,666
24	Ss.	O. D. Bennett, New Orleans	*45,762
24	Ss.	Montana, New York ...	*63,609
24	Ss.	H. G. Wylie, Boston	*40,688
25	Ss.	San Tirso, Hamburg	*53,933
26	Ss.	P. H. Harwood Providence.	*64,221
27	Ss.	Mirlo, New York	**78,464
27	Ss.	E. L. Doheny, Galveston...	*60,776
27	Ss.	N. Bridge, Galveston.....	*41,478
27	Ss.	Fueloil, Miami	*14,135
28	Ss.	Mantilla, Southampton ...	*51,998
28	Ss.	Meline, New York	*64,545
29	Ss.	S. V. Harkness, New York.	**73,437
29	Ss.	Fred Ewing, New York ...	*66,875
29	Ss.	Nora, New York	*84,353
29	Ss.	C. E. Harwood, Tampa ...	*31,949
30	Ss.	Mexoil, Miami	** 3,809
30	Ss.	Mexoil, Miami	*10,773
30	Ss.	Panoil, Houston	*14,374
31	Ss.	C. O. Boyd, New Orleans.	**19,307
		Bunkers deliveries	155,559
		Total	2,738,859

By Cia. Mex. Holandesa La Corona S. A.

Aug.	Rig	Vessel and Destination—	Bbls.
1	Ss.	Malmanger, U. S. A.	64,453
2	Ss.	El Oso, U. S. A.	60,897
2	Ss.	Swiftsure, U. S. A.	30,878
2	Ss.	Lacuna, Europe	*45,340
3	Ss.	Caprella, Europe	*50,174
4	Ss.	Hadnot, U. S. A.	55,139
4	Ss.	British Light, Europe ...	*53,542
5	Ss.	E.D.de la Meurthe, Europe	*49,598
6	Ss.	Chiton, Europe	*49,062
8	Ss.	Trinidadian, U. S. A. ...	23,508
8	Ss.	Lampas, U. S. A.	48,466
10	Ss.	Queen Louise, Europe	*48,950
10	Ss.	Malmanger, Europe	*60,312
12	Ss.	Trophon, U. S. A.	*32,793
14	Ss.	Gulfpoint, U. S. A.	68,709
15	Ss.	Conus, Europe	*50,538
15	Ss.	H.D.de la Meurthe, Europe	48,460
17	Ss.	Tricentrol, Europe	**63,685
17	Ss.	Madrono, U. S. A.	51,657
18	Ss.	Niobe, U. S. A.	65,580
19	Ss.	G. R. Crowe, U. S. A. ...	28,429
19	Ss.	Golaa, U. S. A.	56,657
20	Ss.	Cardium, Europe	*49,010
21	Ss.	Catahaula, U. S. A.	45,253
21	Ss.	William Isam, U. S. A. ...	30,132
22	Ss.	Lampas, U. S. A.	49,361
22	Ss.	Davanger, Europe	*60,331
23	Ss.	Guiftrade, U. S. A.	70,590
23	Ss.	Melona, Europe	*45,691
24	Ss.	Pioneer, Cuba	47,344
25	Ss.	Dosina, Europe	*40,244
25	Ss.	El Oso, Europe	54,656
27	Ss.	Oina, Europe	*52,935
27	Ss.	Scottish American, U. S. A.	64,390
28	Ss.	Scott Musician, U. S. A. ..	61,378
31	Ss.	Gulfoil, U. S. A.	45,571
31	Ss.	Vaarli, U. S. A.	56,295
		Coastwise deliveries	173 060
		Bunkers deliveries	154,673
		Total	2,207,650

By Mexican Eagle Oil Co, Ltd.

Aug.	Rig	Vessel and Destination—	Bbls.
1	Ss.	Poljana, Argentine Ports.	**28,571
3	Ss.	San Tiburicio, Valparaiso.	*40,536
4	Ss.	San Lorenzo, Lizard Point f/o	*83,240
7	Ss.	San Rosendo, Lizard Point f/o	*48,186
7	Ss.	Recco, Valdo, Ligure ..	*57,002
10	Ss.	War Mehtar, Devonport f/ o	*51,000
13	Ss.	India, Buenos Aires and Montevideo	*33,911
13	Ss.	San Ubaldo, Lizard Point f/o	*57,330
16	Ss.	San Nazario, Rio de Janeiro et al	*60,341
17	Ss.	San Ugon, Lizard Point, f/o	*57,332
22	Ss.	Rosaria, Vado, Ligure ..	*45,172
24	Ss.	San Valerio, Buenos Aires	*51,060
25	Ss.	San Gaspar, Rio de Janeiro and Buenos Aires	*31,350
25	Ss.	San Leon, Montreal, Can..	*55,420
25	Ss.	San Leopoldo, Lizard Point, f/o	**24,300
25	Ss.	Oackfield, So. America...	**12,995
26	Ss.	Rapallo, Vado, Ligure ...	*45,712
30	Ss.	Camden, Panama	*59,303
31	Ss.	San Fabian, Montevideo and Santos	*60,196
		Coastwise deliveries	*120,370
		Bunkers deliveries	163,070
		Total	1,256,755

By Transcontinental Petroleum Co.

Aug.	Rig	Vessel and Destination—	Bbls.
1	Ss.	Cedarhurst, Baton Rouge.	43,791
1	Ss.	Cassimir, New York	48,314
2	Ss.	Princeton, New York	50,411
6	Ss.	Gulfoil, Galveston	48,314
7	Ss.	Mary Luckenbach, Key West	47,555
7	Ss.	Baytown, Baytown	33,705
8	Ss.	Scottish Musician, New York	63,017
9	Brg.	Freeport Sulphur No. 4, Freeport	14,697
9	Brg.	Freeport Sulphur No. 3 Freeport	15,003
9	Ss.	Baton Rouge, San Juan .	*47,319
10	Ss.	Pioneer, Jacksonville	48,146
10	Ss.	Vaarli, Philadelphia	56,539
11	Ss.	Republic, Baton Rouge....	42,650
11	Ss.	Baltic, New York	72,295
13	Ss.	Freeport Sulphur No. 1..	19,367
14	Ss.	Uncas, New York	48,464
15	Ss.	Caloria, La Ceiba, C. A...	33,926
15	Ss.	Sulfstar, Port Arthur	60,965
16	Ss.	Wm. Green, New York....	65,469
17	Ss.	Baytown, Baytown	23,000
18	Ss.	Mary Luckenbach, Charleston	45,730
19	Ss.	Mevania, Fall River	61,819
22	Ss.	Corning, Port Tampa	47,700
23	Ss.	Baytown, Baytown	24,622
27	Ss.	Caloria, New Orleans	45,427
28	Ss.	Ligonier, Savanah	29,953
28	Ss.	Dora, Philadelphia	50,654
28	Ss.	Baton Rouge, Baton Rouge	42,570
29	Ss.	Sulphur No. 1, Freeport..	19,417
29	Ss.	Republic, New York	44,154
30	Ss.	Baytown, Baytown	24,034
31	Ss.	Mary Luckenbach, Key West	47,500
		Bunkers deliveries	23,410
		Total	1,384,631

By Freeport & Mexican Fuel Oil Corp.

(Sinclair Interest)

Aug.	Rig	Vessel and Destination—	Bbls.
1	Ss.	Swiftsure, Fall River	30,967
5	Ss.	Panuco, Cuba	56,169
6		Madrono, Houston	56,132
6	Ss.	E. W. Sinclair, Cuba	45,132
7	Ss.	W. L. Connelly, Cuba	32,161
8	Ss.	Gene Crawley, Puerto Limon, C. A.	31,180
10	Ss.	Henry Farnum, New Orleans	32,256
15	Ss.	Tamesi, New Orleans.....	34,790
17	Ss.	Panuco, Puerto Barrios, C. A.	34,671
17	Ss.	E. W. Sinclair, Cuba	45,223
17	Ss.	J. F. Farrell, New Orleans	46,519
20	Ss.	Henry Farnum, Houston..	32,434
23	Ss.	W. L. Connelly, Jacksonville	30,391
26	Ss.	Gene Crawley, Cuba	32,155
28	Ss.	Harry Farnum, Cuba.....	32,691
29	Ss.	J. F. Farrell, Tiverton ...	46,042
		Bunkers deliveries	7,281
		Total	624,945

By East Coast Oil Company

Aug.	Rig	Vessel and Destination—	Bbls.
1	Ss.	Sulphur No. 3, Freeport..	15,005
1	Ss.	Sulphur No. 4, Freeport...	14,479
2	Ss.	Tamiahua, Galveston	50,373
5	Ss.	Torres, Galveston	50,051
6	Ss.	Topila, Galveston	49,519
8	Ss.	Sulphur No. 1, Freeport..	19,515
9	Ss.	Tamiahua, Galveston	50,465
13	Ss.	Topila, Galveston	49,040
15	Ss.	Torres, Galveston	49,963
17	Ss.	Sulphur No. 4, Freeport...	14,744
17	Ss.	Sulphur No. 3, Freeport ..	14,981
17	Ss.	Tamiahua, Galveston	50,393
22	Ss.	Torres, Galveston	50,302
22	Ss.	Sulphur No. 1, Freeport..	19,313
22	Ss.	Tamiahua, Galveston	22,286
24	Ss.	Sulphur No. 4, Freeport..	14,965
25	Ss.	Topila, Galveston	49,463
30	Ss.	Torres, Galveston	50,278

10	Ss.	Tamiahua, Galveston	91,440
		Bunkers deliveries	13,274
		Total	931,099

By The Texas Co. of Mexico, S. A.

Aug. Rig		Vessel and Destination—	Bbls.
1	Ss.	Texas, Norfolk	55,149
1	Ss.	Louisiana, Cienfuegos	26,341
3	Ss.	Georgia, Port Neches	47,322
5	Ss.	Derbyline, Bayonne	*60,761
9	Ss.	Dungannon, Port Neches..	62,849
13	Ss.	Georgia, Guayanilla, P. R..	45,253
14	Ss.	Virginia, Providence	*53,891
15	Ss.	Pennsylvania, Port Neches	60,331
17	Ss.	Reaper, Galveston and Port Neches	29,936
17	Ss.	Reaper, Galveston and Port Neches	*28,236
18	Ss.	Texas, Delaware River....	57,069
19	Ss.	Dungannon, Port Arthur and Port Neches	20,865
19	Ss.	Dungannon, Port Arthur and Port Neches	**6,974
24	Ss.	Pennsylvania, Providence	*66,699
25	Ss.	Derbyline, Port Neches ..	60,519
27	Ss.	Reaper, Delaware River..	58,387
30	Ss.	Louisiana, Galveston	*26,546
		Bunkers deliveries	32,376
		Total	789,414

By Mexican Gulf Oil Co.

Aug. Rig		Vessel and Destination—	Bbls.
1	Brg.	Monogehela, Port Arthur.	17,811
1	Brg.	Connemaugh, Port Arthur	15,567
6	Ss.	J. M. Guffey, Port Arthur	20,607
7	Ss.	Winifred, Port Arthur....	19,868
11	Ss.	Ligonier, Port Arthur	32,793
12	Brg.	Monongahela, Port Arthur	17,248
14	Ss.	Gulfstate, Port Arthur....	66,483
14	Ss.	J. M. Guffey, Port Arthur	19,985
15	Ss.	Currier, Port Arthur	45,219
15	Ss.	Winifred, Houston	18,587
21	Ss.	Currier, Port Arthur	46,584
22	Ss.	Gulfpoint, Port Arthur ..	67,868
23	Ss.	Winifred, Port Arthur ..	19,670
24	Ss.	Gulfstar, Port Arthur ..	69,869
29	Ss.	Gulfpoint, Port Arthur ...	68,533
		Bunkers deliveries	26,671
		Total	573,363

By New England Fuel Oil Co.

Aug. Rig		Vessel and Destination—	Bbls.
11	Ss.	Swiftarrow, Fall River ..	71,879
14	Ss.	Toco, Tocopilla	63,206
29	Ss.	Swifteagle, Fall River	67,622
31	Ss.	Swiftarrow, Fall River....	1,907
		Bunkers deliveries	19,275
		Total	223,889

By Imperial Gas & Fuel Co.

Aug. Rig		Vessel and Destination—	Bbls.
9	Ss.	Catahoula, Tampa	46,816
13	Ss.	Newona, Southport, La. ...	23,429
21	Ss.	Dora, New Orleans	51,829
26	Ss.	Newona, Southport, La....	22,863
		Total	144,937

By International Petroleum Co.

Aug. Rig		Vessel and Destination—	Bbls.
4	Ss.	Caloria, Puerto Padre, Cuba	43,099
16	Ss.	Wellington, Puerto Padre, Cuba	25,245
31	Ss.	Swiftarrow, Fall River...	68,556
		Total	136,900

By Chadwick & Co.

Aug. Rig		Vessel and Destination—	Bbls.
3	Ss.	Sulphur No. 1, Texas City	19,335
18	Ss.	Sulphur No. 1, Texas City	18,915
25	Ss.	Aztec, Texas City	53,290
		Bunkers deliveries	4,898
		Total	96,438

By Interocean Oil Co.

Aug. Rig		Vessel and Destination—	Bbls.
15	Ss.	Aztec, New Orleans	52,800

By Continental Mexican Petroleum Co.

11	Ss.	Trimountain, Antofogasta	*26,698

By Panuco-Boston Oil Company

Aug. Rig		Vessel and Destination—	Bbls.
17	Ss.	E. V. R. Thayer, Philadelphia	64,243
21	Ss.	Baba, Philadelphia	42,973
		Total	107,261

By Pierce Oil Corporation

Aug. Rig		Vessel and Destination—	Bbls.
23	Ss.	Mexicano, Texas City	*20,829
		Bunkers deliveries	,673
		Total	21,502

FROM PORT LOBOS

By The Texas Co. of Mexico, S. A.

Aug. Rig		Vessel and Destination—	Bbls.
4	Ss.	Reaper, Mobile & Tampa	*59,500
10	Ss.	Shenandoah, Panama.....	*58,982
11	Ss.	Trimountain, Antofogasta	*18,711
14	Ss.	Louisiana, Jacksonville..	*27,209
17	Ss.	Dungannon, Port Arthur.	**44,466
31	Ss.	Maricopa, Buenos Aires ..	*66,662
31	Ss.	Maricopa, Buenos Aires..	1,881
		Bunkers deliveries	16,320
		Total	293,731

By International Petroleum Co.

1	Ss.	Vistula, Montreal	93,761
6	Ss.	Masconomo, Montreal ...	43,113
6	Ss.	Agwimoon, Montreal	74,104
13	Ss.	Baltic, New York	19,594
		Total	230,573

By Cia. Petrolera del Agwi, S. A.

3	Ss.	Agwimars, Boston	70,992
18	Ss.	Agwiworld, Boston	70,807
24	Ss.	Agwimars, Boston	70,064
		Coastwise deliveries, Progreso	*26,402
		Bunkers deliveries	6,390
		Total	244,655

FROM TUXPAM

By Mexican Eagle Oil Co., Ltd.

6	Ss.	Lacuna, Land's End. f-o..	*5,363
6	Ss.	San Lorenzo, Lizard Point, f-o	*14,908
15	Ss.	India, Montevideo	*13,416
18	Ss.	San Nazario, Buenos Aires	*13,584
25	Ss.	San Gregorio, Buenos Aires and Montevideo ...	*98,511
27	Ss.	San Gaspar, Buenos Aires	*18,783
		Bunkers deliveries	70,816
		Total	235,379

AUGUST SUMMARY

From—	
Tampico	11,316,996
Port Lobos	768,958
Tuxpam	235,379
Total, August, 1923	12,321,333
Total, August, 1922	13,599,781
Decrease, August, 1923	1,278,448

DIVISION OF MOVEMENT

To—	
United States	8,178,620
The Continent	895,032
South America	839,449
United Kingdom	558,675
Mexican Coastwise	319,847
Cuba	274,995
Canada	366,398
Panama	113,245
Mediterranean Ports	88,645
Central America	87,757
Bunkers (to balance)	693,670
Total	12,321,333

(Note: * Denotes Topped Crude; ** Denotes Distillates.)

MEXICAN FIELDS

(Continued from Page 52)

a similar formation at 2,400 feet. In Moralillo, its No. 1-A is drilling in gray shale at 3,740 feet. In Juan Casiano, its No. 10-A, Lot 160 Chinampa, is drilling in rock at 2,038 feet, and No. 13, Lot 157, is drilling in limey shale at 1,040 feet. Cortez Oil Corp.'s No. 5, Lot 199 Amatlan, is drilling in gray shale at 750 feet, and No. 3, Lot 189, and No. 5, Lot 148, Amatlan, are rigging. International Petroleum Co.'s No. 41 Toteco is spudding; No. 2 San Miguel, south of the Tuxpam River, drilling in shale at 610 feet; Island Oil & Transport Corp.'s No. 4, Lot 176 Amatlan, is drilling in hard rock at 1,081 feet, and No. 6, Lot 177, same, is drilling in shell at 850 feet; Lindberg & Sandoval, No. 25, Lot 2, Chiconcillo, shut down to repair boilers at 2,210 feet. Mexican Gulf Oil Co.'s No. 2, Lot 185, Santiago de la Pena, south of the Tuxpam River, is drilling in sticky shale at 3,175 feet. Mexican Eagle Oil Co.'s No. 8 La Palma, west of Furbero, is drilling in hard gray shale at 1,147 feet; No. 28, Lot 125, Amatlan, drilling in blue shale at 1,862 feet; No. 24, Lot 198, Amatlan, drilling in basalt at 730 feet; and No. 5, Lot 163, Chinampa, drilling in gray limestone at 1,935 feet.

Topila and Miscellaneous

In the Topila Pool, Bravo Drilling Co., No. 1, Lot 30, Pac. de Agua, is fishing for tools at 2,080 feet, in the San Felipe. Credito Petroleum Co.'s No. 3, Lot 9, same sector, is drilling in the San Felipe at 1,975 feet. La Corona Petroleum Co.'s No. 1 Tobalo is drilling in shale at 720 feet. Globe Petroleum Co.'s No. 4, Lot 174 Quebrache, is drilling in gray shale at 2,400 feet. The Financiera Co.'s test, No. 4, Lot 5 Pac. de Agua is drilling in the San Felipe at 1,600 feet. The Texas Co.'s No. 10, Lot 17, Lomas y Llanos, is drilling in shale and shell at 1,559 feet.

At Ebana, Mexican Petroleum Co.'s No. 18, Chijol, is drilling in the limestone at 2,153 feet, showing oil; No. 19, same, is drilling in a limey shale at 1,520 feet; No. 29, La Dicha, drilling at 610 feet in shale, and No. 30, is drilling in a similar formation at 925 feet.

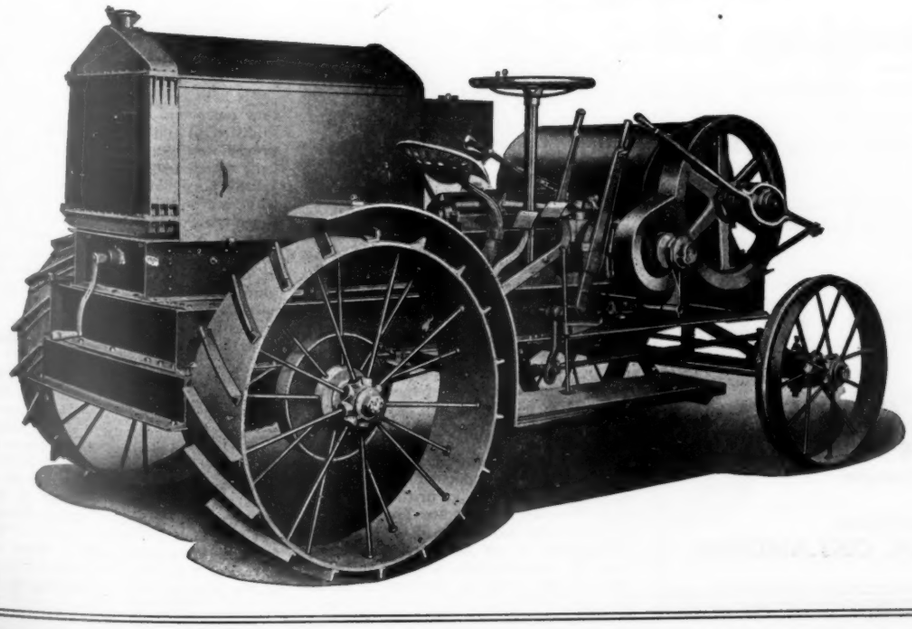
In the Marland Field, Cia. Pet. Franco Espanola, No. 12 Limon, is drilling in hard limestone with layers of shale at 2,000 feet; and No. 13, same, drilling at 180 feet.

At Los Esteros, in the State of Tamaulipas, American International Fuel Co.'s No. 10 is drilling in white limestone at 2,715 feet and No. 11 is drilling in blue shale at 750 feet.

In the Caracol district, near Tampico, Hummell & Frix, No. 3, Lot 51, cemented 8-inch in the San Felipe at 1,668 feet. Allison Smith, No. 2, Lot 50, is running 8-inh at 1,670 feet in a similar formation and Woollett & Parker, No. 1, Lot 94, is shut down at 2,420 feet to see just what production can be obtained by manipulating the gate and so adjusting pressure. Robert Mead and others' No. 1, Lot 31, is moving in.

Tractor Rod and Tube Pulling and Bailing Machine

"Built for the Job"



Cuts operating cost. Wide range of speeds. Operating levers centrally located. Three speeds and reverse on spool or road. Special features: Shafts mounted on Ball Bearings, heat treated Nickel Steel Gears, Steel Clutches, Bronze Bushings in all parts running loose on shafts; moving parts are enclosed running in oil, protected from dust and dirt. Power take off pulley for belt work. Drawbar on rear full width of machine.

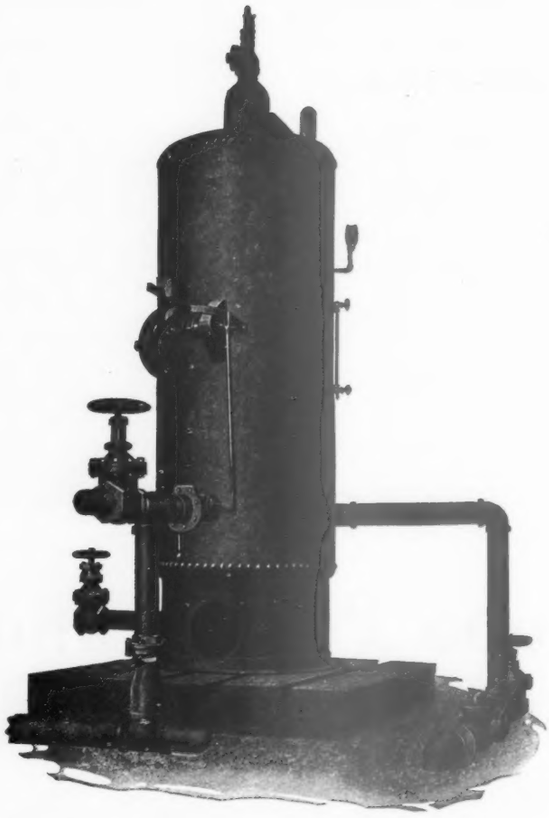
Patents Applied for and Pending

Myrick Machine Co.
Olean, N. Y.

31	Ss.	Gulfoil, U. S. A.	.....	45,571	25	Ss.	Topha, Galveston .....
31	Ss.	Vaarli, U. S. A.	.....	56,295	30	Ss.	Torres, Galveston .....

IMPROVED TRUMBLE

OIL AND GAS SEPARATOR



The Trumble Oil and Gas Separator keeps the gasoline in the oil by maintaining the gas under pressure when it is leaving the oil, which results in preventing it from expanding and increasing its capacity for carrying the gasoline.

Spreads the oil in a thin body so gas leaves it with the least possible obstruction.

The large spreading surface over which oil flows insures immediate escape of gas from oil and accounts for the Trumble capacity of the Trumble Trap.

Made in different designs to meet all requirements.

Increase your profits by saving the gasoline in your oil by using a Trumble Oil and Gas Separator.

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WILLIAM C. RAE, Sales Manager

Eastern Representative:
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Chester Grant Delay For Five Months Is Asked From Turkey

A delay of five months in taking up the option on one of the 13 concessions granted by the Turkish government to the Ottoman American Development Co. has been asked, according to a statement issued by the executive committee of the corporation. The concession affected is that covering the Samsoun-Sivas and Angora Moussay-Keuy railroads.

"The option," said the statement, "expired on October 9 and before that date the company was supposed to file notice of acceptance or abandonment of that option. Upon notice of acceptance work must be started on the Samsoun-Sivas railroad within one month and on the Angora Moussay-Keuy railroad within six months. Upon notice of abandonment the company abandons this option on the first section, but this action will not prejudice in any way the other sections of the concessions.

"On October 3 the executive committee of the company authorized sending to the Turkish Government the following cable: 'The Ottoman American Development Co. begs to notify the Government of Great National Assembly of Turkey, through his Excellency Kemal Pasha and Feizi Bey, Minister of Public Works, that the company has made preliminary plans for financing construction of the Samsoun-Sivas and Angora Moussay Keuy railroads and port of Samsoun, and has made available extensive economic and engineering surveys. The company regrets that partly on account of inability to secure the surveys and studies of said railroads to be supplied by the Minister of Public Works and partly on account of other causes over which the company has no control, the company is unable to complete plans commensurate with this great undertaking before October 9, and begs for extension of five months in which to file notice of definite acceptance.

" 'Failing to receive required extension the company is regretfully compelled to serve herewith notice that it must abandon Samsoun-Sivas and Angora Moussay Keuy railroads and Port of Samsoun projects upon expiration of option on October 9. The company hopes the officials of the Government will recognize reason and fairness of this request and will grant delay in which to fail said notice.' "

The statement said that E. Clayton-Kennedy had left on September 11 to negotiate the extension of time sought. The 13 concessions run for 99 years and cover oil, railroads and mines, as well as rights to two ports on the Black Sea and one on the Mediterranian Sea.

EIGHTY PER CENT OF OIL NOT RECOVERED

(Continued from Page 58)

parent. This is particularly true because quick results are not to be expected. If the work could be started tomorrow its results would be needed before they could be obtained. Henry L. Doherty, in his address before the National Petroleum Association on September 20, said "The surplus of oil we now have is being produced under conditions that not only do not insure its continuation, but a rapid decline in production is inevitable, and discoveries must be made at a rate unprecedented before the past few years to even maintain it." In this statement most of the far-sighted men of the petroleum industry concur.

The National Research Council would therefore urge the formation of a cooperative organization to plan, sponsor and finance work on fundamental problems of oil geology and it looks to those oil company executives who are broad-minded, and who have looked ahead to see the future needs of the industry, to develop such an organization, whether it be an entirely new body, or whether it be an addition to some body that already exists is unimportant since it can function effectively in either contingency. The essential things are that this cooperative organization should select projects for attack that will yield the greatest return, that it secure the services of capable men to attack these problems, that it place these men where the facilities to work, for conference with men engaged in like undertakings, and for study will be most conducive to results, and that it commit itself to support the initial projects for at least three years, for as was pointed out earlier, quick results are not to be anticipated.

In all but financing the National Research Council can render assistance. It is prepared to help in suggesting problems, finding competent men to handle them, in arranging with government, university, or other research laboratories so that the work may be done under the best possible conditions, and planning methods for distribution of results—in short to do all in its power to make the work effective.

The desirability of cooperative research and the results that may be achieved by it have been demonstrated by more than 70 organizations throughout the United States. The need for research work on petroleum geology and the benefits that such work may bring to the petroleum industry are evident. There remains to be demonstrated the ability and willingness of individual members of the industry to comprehend that need and to work together to meet it.

EXPOUNDS THEORY OF FISH ORIGIN OF OIL

(Continued from Page 79)

ally multiplying, became slowly changed into altered types, the latest of which are our existing fishes. or long ages they lived in and were confined to lakes, swamps and rivers, as were those that furnished Pennsylvania, Ohio, Oklahoma and other oils. But driven to seek refuge in the sea from huge, pedaceous reptiles, they there increased enormously and became the source of much of our western States oils, also the Galician, Rumanian, Baku, Burmese, and, according to the writer, the remarkable Californian supplies.

So the story of the world's oil supplies is steadily being understood and explained. As the story unfolds, so will our realization expand as to the rich reserves still in store. All of this the writer treats of in a volume that will soon appear, and which bears the title, "Fishes the Source of Petroleum."

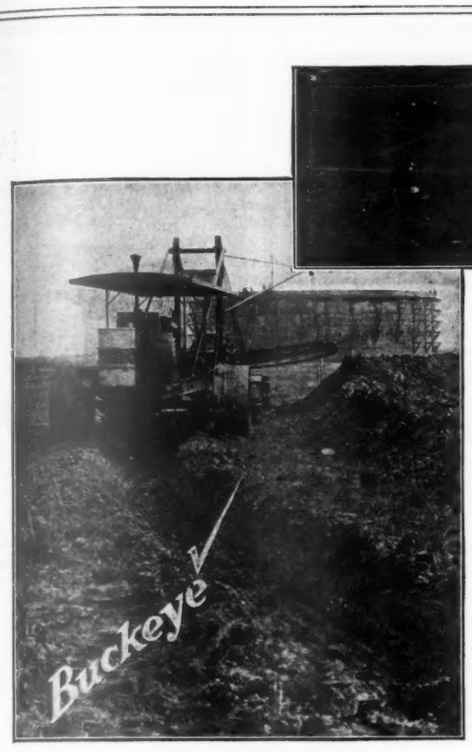
Not From Fish Alone, Says White

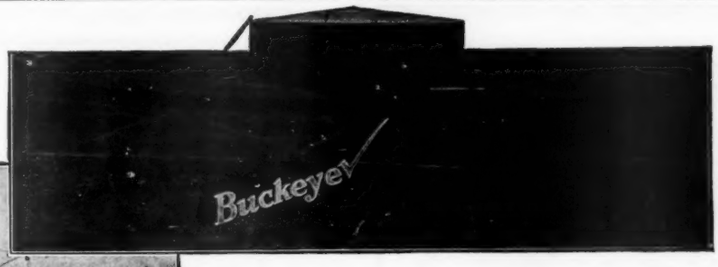
Dr. David W. White, petroleum expert at the geographical survey of the Department of Interior, does not believe that fish constitute the sole source of petroleum.

"It has been proved in our laboratories that petroleum can be made from fish," said Dr. White. "But it has also been proved that vegetables also are a source from which petroleum is derived. While I have no doubt that some of our petroleum comes from fish, I do not think it conceivable that all of it did. I can not conceive of conditions which would bury enough fish or other animals far enough underground to produce our vast oil resources. On the other hand, it is entirely possible with plants."

OIL BURNING NAVIES GROW

September always sees the British Admiralty making inquiries in the Welsh coal market for supplies for the ensuing year. This year the Admiralty asks for quotations on 400,000 tons, whereas before the war turned the British Navy into oil burners it usually asked for at least 1,250,000 tons. The contrast is deeply felt in coal market. Other European navies which formerly applied to Wales for coal are burning oil, so Welsh fields have lost a group of customers whose inquiries always had a steadying effect.





Retainer Walls at 5 Cents a Foot

You can build retainer walls with Buckeyes twice as fast as by hand and at one-tenth the cost. Figures from owners give the cost at about 5 cents a foot.

Then, too, there's the "double duty" feature of Buckeyes. The same machine will dig pipe line trench at about one-third the cost of doing it by hand.

Your Buckeyes will more than pay for themselves. Some owners tell us they're better than 50 men—and much more dependable.

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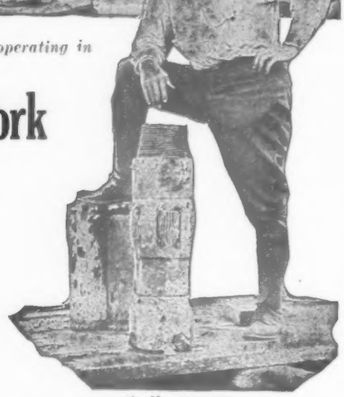
Crew of Trinity Drillers, Inc., operating in the Luling Field

Make Short Work of Hard Rock Formations with Reed Roller Bits



E. C. Brogan, Head Driller for Trinity Drillers, Inc.

Here's some more staunch friends of the Reed Roller Bit and Reamer—plus Slush Lubricating System—down there in the new Luling (Tex.) Field, where Reed records are attracting attention for their wonderful performances.

Big Chief Brogan posed with the Reed Bit and Reamer with all the pride of the Big Bambino after a home run drive over the Polo fence. In brief, here's the reason:

Went in hole 8:30 p. m., Saturday, June 30th; came out July 3rd, at 8:30 a. m. Actual drilling time, 42½ hours. Made 143 feet in Austin chalk; cutters later used on Buda lime. Job: Byrd No. 1, for Rydal Oil Co.

Austin chalk is a mean formation that makes the driller's life a burden with old style oil lubrication; the heavy oil would get into the bearings and grind them out, often leaving "junk in the hole."

But the Reed Slush Lubrication System sees the job through to a successful completion **without a drop of oil,** doing away with pullouts and speeding up the drilling. As a driller puts it: "We keep the Reed bit going till she stops running."

Write for our "Rubiayat" Book—It tells the whole story.

Reed Service Means Now

Reed Roller Bit Co

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Stocks with Continental Supply Co. and Frick-Reid Supply Co.

CALIFORNIA OFFICE: 1341 Santa Fe Avenue Los Angeles. Phone 660-68. Ask for Mr. E. B. Wiggins.

CANADIAN FIELDS

(Continued from Page 48)

now 3,000 feet. No new work is at present contemplated in this area.

In east-central Alberta, Imperial Oil, Ltd.'s Grattan No. 2, Section 14-45-8w4, has reached 1,864 feet, at which depth some minor trouble has developed with the casing. While unofficial reports have credited this well with commercial gas production and considerable oil showings, the production department of Imperial Oil, Ltd., states that it is totally unaware of the reported oil showings, and as yet the well has not encountered gas in quantity.

Dr. J. S. Stewart of the Imperial Oil, Ltd., geological department, is carrying out reconnaissance work over a wide area in Alberta; and while in the course of this work he has visited the Many Island Lake district, the report that Imperial Oil, Ltd., intended to start a test in that area is apparently without foundation. Neither is Imperial Oil Ltd., interested in a projected test by the Canadian Oil & Refining Co. of the supposed new structure north of Medicine Hat.

Many Island Lake

Meanwhile, work is being pushed on several tests in the Many Island Lake area. Canadian-American Oil & Gas Co., Section 31-13-1w4, has struck some gas at 1,350 feet. Underreaming was started at the well, and as the mud thinned out the gas came through. It is reported a fair commercial production; but the test will be deepened for oil. The company is talking of installing a small extraction plant, and also of manufacturing carbon black from the residual gas. Many Island Oil & Gas Co.'s Drazan No. 1 is reported down 700 feet, and starting to run casing. Community Oil Wells, Ltd., Section 19-14-1w4, is reported drilling around 2,480 feet. Provincial Oil & Gas Co. of Regina, Sask., has a camp partly completed at a location on the eastern fringe of the Many Island Lake area, just across the Saskatchewan boundary, and expects to start drilling this month.

In the eastern section of Sweetgrass district, southern Alberta, Canadian Oil & Refining (Rogers), Section 29-1-11-w4, is below 1,400 feet, drilling slowly and running 12½-inch casing close to the bit. In the Quarantine Reserve, Boundary Oil Co. (McCullough-Patterson) Section 3-1-15-w4, is reported shut down, pending the result of negotiations for a merger of oil interests in this field. It is understood that, owing to lack of funds, a number of the companies with unfinished tests in Township 1-15-w4 will probably pool their resources with a view to definitely completing one of the tests.

On the Montana side of the international boundary, the Nicholson State well, Section 36-35-3w, is reported to have brought in a gas flow estimated at 3,500,000 feet a day. The Kevin Commercial Club is planning to lay a pipe line to utilize the gas. The Gladys-Belle test in the Sweetgrass Hills is reported drilling at 2,660 feet and expects the Ellis sands around 2,700 feet. Spartan Oil Co., Section 28-37-3w, is reported drilling at 2,520 feet with 8¼-inch casing being carried close behind the bit, and looks for the Ellis sand around 2,690 feet.

East Central Alberta

In east-central Alberta, British Petroleums, Ltd.'s No. 2, Section 30-46-6-4w, is reported to have drilled through 17 feet of oil-bearing sand between 2,017 and 2,036 feet and may test this horizon by shooting before deepening the hole. A supply of 8-inch casing is being moved to the well site. Geologists R. T. Elsworthy and R. J. Alford, of the Geological Survey of Canada, have been testing the various wells in the Viking-Irma-Fabyan-Wainwright area for the Dominion Government.

In the Ontario Fields, Coste Oil & Gas Co.'s No. 5, Moore Township, Lambton County, is reported to have been abandoned at 958 feet, no result having been secured. Coste Oil & Gas Co.'s No. 4, Dawn Township, Lambton County 2 miles west of Edy's Mills, is drilling at 3,300 feet on its deep test, being 335 feet in the Trenton limestone, without a show. In Kent County, the Glenwood Natural Gas Co.'s deep test on the Hugh Shanks farm, near Port Alma, which got the Trenton limestone at 2,712 feet, is reported drilling below 3,012 feet without a show. The Union Natural Gas Co.'s deep test on the old Truckenbrod farm, near Port Alma, is drilling around 1,000 feet.

Gasoline Reduced

An investigation instituted by the Manitoba Provincial Government into the spread in the price of gasoline between Canada and the northern States was formerly instituted a few days ago when Prof. G. L. Shanks, of the engineering department of the Manitoba Agricultural College, was named as a commissioner to conduct the inquiry. In the province of Alberta, Premier Greenfield has intimated that preparations are being made for a similar inquiry. A reduction of 1 cent a gallon was announced some time ago in Alberta gasoline prices, and this has just been followed by a further reduction, making the present price 37 cents, including the 2-cent Provincial tax. In Vancouver, B. C., gasoline is reported selling at 25 cents a gallon at Union Oil Co. stations, to meet the competition of retailers who have been selling at this price.

EASTERN FIELDS

(Continued from Page 48)

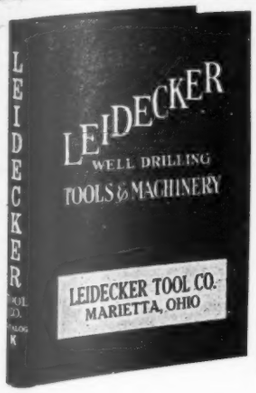
Gas Co. has drilled a test on the Ray Johnson farm through the Clinton sand, a duster. In Section 2, Rush Creek Township, the Ruff & Stewart Oil & Gas Co. has started to drill a test on the Del Miller farm, south of production, on the L. & S. Householder farm.

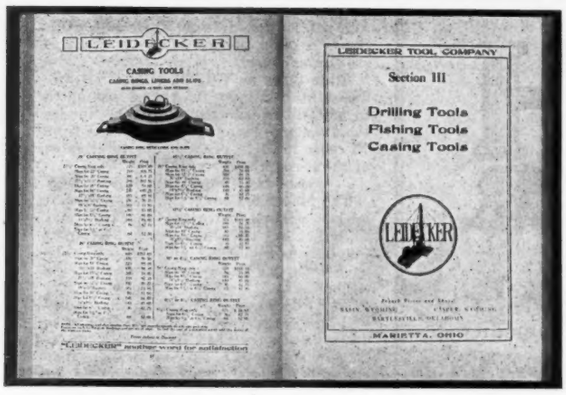
Southwest Pennsylvania

Gassers and dry holes were the offering in the southwest Pennsylvania fields during the past week. The best of the gassers completed is the Keystone Oil & Gas Co.'s second test on the David Lemley farm, in Springhill Township, Greene County. It is good for 3,000,000 feet a day in the Big Injun sand. In Gilmore Township, the Peoples Natural Gas Co.'s test on the Manias farm is through all sand and a light gasser. In the same township, the same company's tets on the W. F. and Mary F. Minor farm, is a gasser in the Bayard sand. In Richill Township, the Richill Oil & Gas Co. has a gasser in the salt sand at a test on the J. M. Phillips farm. In Springhill Township, the Grim Oil & Gas Co. has a Gordon sand gasser on the John Caldwell farm. In Wayne Township, the Hoy Oil & Gas Co.'s test on the D. M. Hoy farm is a gasser in the Bayard sand. The Carnegie Natural Gas Co.'s test on the Samuel Lemley farm is a gasser in the Big Injun sand. In Washington Township, the Waynesburg Home Gas Co. is fishing at 2,400 feet on the D. F. Brown farm. In Moon Township, Allegheny County, 2,200 feet east of the first test, J. Craig has drilled a second test through all sands, and dry. On Myers Bros.' town lot at McKee's Rocks, Allegheny County, the Jones Oil Corporation has now drilled through the Fifth sand and dry. Two miles north of Swartz, Washington Township, Greene County, the Manufacturers Light & Heat Co. has completed No. 5 on the Frank W. Wright farm, dry in all sands.

SEPTEMBER OIL FIRES

Losses by fire in the United States and Canada during September reached a total of $28,738,500, over $4,000,000 greater than August figures, but nearly $13,000,000 below the record of September, 1922. Oil fires: Galveston, Texas, oil tank, $100,000; Detroit, Mich., oil storage, $100,000; Corsicana, Texas, oil tanks, $20,000; Everett, Mass., oil plant, $20,000; Freeport, Ill., nine cars of oil, $20,000; Blackwell, Okla., gasoline storage tank, $30,000; total, $290,000. Other items of oil interest: North Bessemer, Pa., asphalt plant, $10,000; Amarillo, Texas, gas well, $10,000.





LOOK IN THIS BOOK FOR

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- CASING TOOLS
- DERRICK TOOLS
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- SURFACE EQUIPMENT
- PUMPING MATERIALS
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YOUR COPY IS READY

Leidecker's new General Catalog is just off the press and your copy awaits your request. We believe you will appreciate having this book, as it presents a ready reference for filling all your drilling or operating needs.

Each item throughout this new volume is finely illustrated, described and priced for your convenience.

Your name and address will bring you the copy, together with the latest price catalog to apply.

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MARIETTA, OHIO, U. S. A.

Here is Greater Power and More Rugged Strength

Even before its recent improvements the Williams "Vulcan" wrench was the standard for 25 years by which all others were judged. Imagine then the popularity this tool enjoys with a great host of drillers since its added improvements have given it greater strength and convenience.

For both Standard and Rotary drilling the "Vulcan" Break-Out wrench has no equal anywhere. A glance over its specifications is convincing proof of this broad statement.

The short, sturdy handle is made of stiff steel which is so distributed as to utilize its weight to greater advantage.

Each chain is individually proof tested, to insure superior service, on a standard tension machine to two-thirds of its catalogued strength.

Williams chain wrenches are the only pipe wrenches that offer this certified assurance of strength and security. May we send you our literature?

J. H. Williams & Co.
Brooklyn Buffalo Chicago

The jaws are fastened with the new, extra size through bolt and nut; they can't work loose, or spread.

The large swinging link which connects the chain with the through bolt, is drop-forged from a fine grade of Chrome Vanadium steel and is heat-treated.

Suspension clamp is provided as illustrated and an eye of ample size is forged on the end of the handle.

WILLIAMS

SUPERIOR DROP-FORGED TOOLS

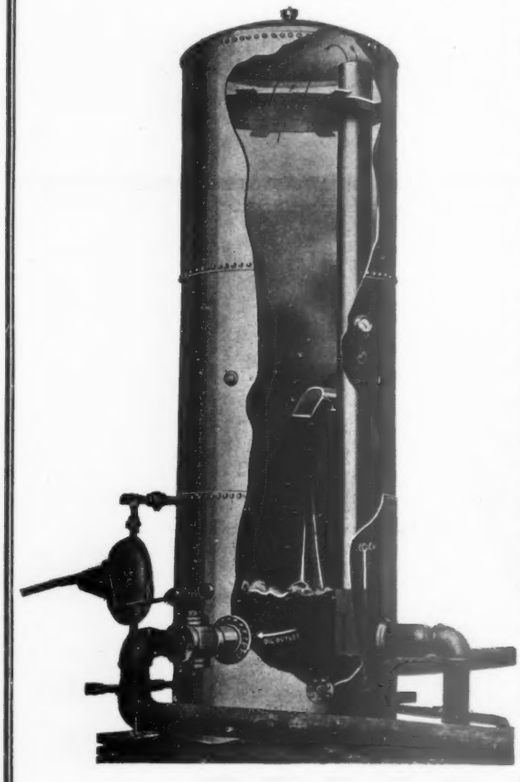
"VULCAN"
BREAK-OUT WRENCH
BETTER KNOWN AS
"MAUD"

SMITH OIL AND GAS SEPARATOR

It is conservation thrice over—of money, property and time. It creates a readily salable commodity—gas. It prevents the loss of valuable gasoline content from the oil. It protects equipment, wells and oil from danger of fire and explosion. It saves money, time and labor by supplying a ready-to-use fuel that costs you nothing and requires no handling.

It turns your waste gas into a tangible profit—whether your well is small or large.

Even where the location of the lease prevents sale of the gas at present—Smith Separator is worth many times its cost in the protection of your oil and property, and will furnish free gas for fuel on lease.



If gas should be ignited after it leaves the Smith Separator, it can easily be turned off like a gas jet before any actual damage occurs.

And the Separator itself is practically proof against lightning, fire or other menaces to your well or oil.

Lightning has struck all around them, but has never damaged a Smith Separator.

Manufactured by the

Smith Separator Co.,
Tulsa, Okla.

CENTRAL WEST

(Continued from Page 40)

Sandy section, but considerable work is still going on.

State taxes on 701,754 bbls. of oil produced in Kentucky in August amounted to $10,962. This was 5,975 bbls. under the July production. Prices ranged from 75 cents to $1.75 per bbl., the total value of the production being $1,096,254.

Sunday Pumping to Stop

The Magoffin County Circuit Court, at its last session, instructed the grand jury to indict all companies and individuals found responsible for pumping oil wells on Sunday, as "unnecessary labor on the Sabbath day."

About 800 wells in Magoffin County will be affected. They have been pumped every day in the year, Sunday as well as week days, for the last two years. When the rumor of the proposed action of the grand jury became circulated through the oil fields, many of the operators tried to form a mutual society for an effort to discontinue the practice of Sunday pumping, by agreement, but it failed.

The first action of the grand jury will probably be in the nature of a warning to be followed, in a case of failure to heed it, by prosecution.

Burning Fork District

The Burning Fork area of the South Weir Field is becoming attractive. The Cumberland Pipe Line Co. has been taking oil from 51 wells in that district, although that part of the field is comparatively new and undeveloped. Oil from the Burning Fork district gravitates to Bradley post office.

Oliver Jenkins & Hobbs Bros. completed their No. 1 on the Harry B. Adams farm in the Rock Lick Creek territory, north of the Ham May lease. They have a well there good for about 5 bbls., located 3 miles from the William Salyer well which makes the intervening territory look well worth the drilling.

The Carter Oil Co. completed and put on the pump No. 1 William Salyer, estimated around 20 bbls. flush, and above the average for the field. Oliver Jenkins has what looks like a 2-bbl. well on the Salyers heirs' farm.

The Bed Rock Petroleum Co. has drilled in what shows for a 15-bbl. flush producer in a test on the W. E. Patrick. This well extends the proven territory farther north toward the holdings of the Short Fork Oil Co.

The Burning Fork Oil Syndicate, under the management of Fry Browning, in the absence of his brother, Illey B. Browning, now on his honeymoon trip, has spudded in a test on the Raleigh Salyers No. 2 lease. This syndicate has six wells on the Brooke lease, six on the J. T. Patrick, and two on the C. Salyers lease, making a total of 16 completions. No. 6 on the Patrick farm of this syndicate is estimated at around 10 bbls.

In the remainder of the Burning Fork sections producers now developing territory and number of wells completed are: Ivyton Gas Co., 25 gas wells; Elkhorn Coal Co., 8 gas wells; John G. White, 3 gas wells; Short Fork Oil Co., 1 gas well and 3 oil wells; Bed Rock Petroleum Co., 12 oil wells; Patrick & Arnett, 7 oil wells; Swiss Oil Corporation, 1 oil well; Carter Oil Co., 2 oil wells, and Oliver Jenkins, drilling.

North Weir Field

Seven completions are reported for the week from the North Weir Field of Lawrence-Johnson County. The Union Gas & Oil Co.'s No. 5 J. A. Dials, directly south a mile from Martha, and about the same distance east and north of Ayresville, has been completed for two 4-bbl. wells. Its No. 4 on the Anna Rose farm, a short distance out from Keaton, is only a 2-bbl. producer. The Boston-Southwestern Oil Co., formerly reported E. E. White, is estimated at 10 bbls. Figley, Day and others' Nos. 3 and 4 S. V. Skaggs are showing around 10 bbls. each.

South Weir Wells

Six completions are reported from the South Weir Field for the week. Mid-South Oil Co.'s No. 1 Sam Blanton 100 acres, is estimated at 5 bbls.; Oliver Jenkins' No. 1 Salyers heirs' 2 bbls.; Bed Rock Oil Co.'s No. 1 W. E. Patrick, estimated 15 bbls.; Carter Oil Co.'s No. 1 William Salyers, estimated 20 bbls. S. D. Wheeler, trustee's, No. 9 Frank Conley 200 acres, 5 bbls.; R. G. Gillespie's No. 7 Sam and John Blanton, estimated 10 bbls.

The Cumberland Pipe Line Co.'s runs for the week from the Eastern Kentucky Field amounted to 89,252.59 bbls. for a daily average of 14,875.43 bbls.

The Indian Refining Co. reports its runs for September from the Kentucky fields at 109,232.14 bbls. Of this amount Lee, Estill and Powell Counties furnished 46,924.12 bbls.; Allen County, 35,598.93 bbls.; Warren County, 23,205.77 bbls. and Hancock and Ohio Counties, 3,503.32 bbls.

Black Bayou Title Decision Important Because of Precedent

SHREVEPORT, La., Oct. 15.—Decision was rendered by Judge J. H. Stephens, in the first judicial district of Louisiana, in a case of more than usual interest to everyone concerned in the handling of mineral right lands and leases. The action was brought by E. K. Smith, oil operator of Shreveport and Washington, D. C., against the Dixie Oil Co., and was based upon a question of title.

The oil company held title to the property, which was in the bed of Black Bayou, under a mineral lease granted by the State, which based its right to title upon the assumption that Black Bayou was a navigable stream at the time the State entered the Union in 1812, and hence was its by right of sovereignty. The State intervened in the case for the purpose of defending its right to convey to the Dixie Oil Co. the leases under which it had obtained the production for the value of which, to the extent of $150,000 suit was brought by the plaintiff.

Decision was rendered entirely upon acceptance of proof that the stream was navigable and hence properly subject to the State's sovereignty and that the physical possession by the plaintiffs for over a year adversely to the defendants and without disturbance did not constitute a valid claim against the title. A tremendous amount of evidence was submitted in the way of manuscripts, maps and blueprints, and a unique feature in the way of evidence was a carload of stumps removed from the lake, presumably for the purpose of proving by the age of the trees of which they had been the bases, that the stream could not have been navigable at the time they were located in it.

Judge Stephens' ruling included a decision that the stream, measured by existing standards, cannot be considered navigable now but was when its navigability was vital to the State's right to title and that the well in contention in the case was located in the bed of the stream and not on the west bank as had been alleged.

The decision, however, according to Mr. Smith's attorneys, is not final, and it is probable that application for a new trial will be made and in case it is overruled appeal will be made to the Supreme Court. The importance of the decision is suggested by the future possibilities it involves, inasmuch as it may cloud the title to a great area of valuable property upon which production has been already secured but which at periods of high water may have been temporarily navigable.

TO ENLARGE SAN ANTONIO PLANT

The Grayburg Refining Co., of San Antonio is soon to begin additions and improvements to its plant there that will cost $100,000. The capacity of the plant will be increased to 4,000 bbls. Two stills and eight tanks are to be installed. Dubbs cracking units are to be installed.

Leader
REG. U.S. PAT. OFFICE

Rivet – Weld
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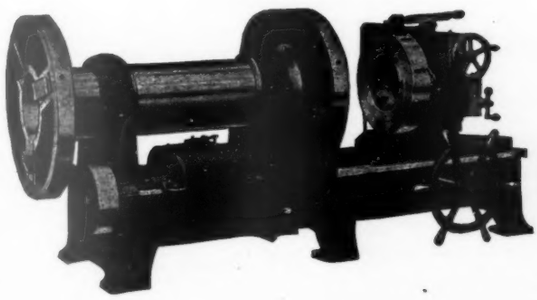
Principle of tank construction embodies all the advantages of both riveting and welding. The tanks are riveted for strength and welded for tightness. Write for our new Bulk Station Equipment Bulletin.

LEADER IRON WORKS, Decatur, Illinois

PEERLESS B&K DUPLEX P.D.Q.



Repeaters

When you are ready for a new pipe machine will you buy another like the one you now own? B & K owners, who are a discriminating class, place repeat orders. A careful survey of sales for many years back shows this to be true.

The reason is not hard to find. The machines are so rugged and well proportioned, so convenient to handle, and so well designed, that once a user, repeat orders are the rule.

The well known Peerless Die-Head, or the new Tangent Die-Head can be furnished.

Catalog tells all about them

BIGNALL & KEELER MACHINE WORKS
Edwardsville, Ill.

Extra Service

Crumbie Tongs

Year after year the list of companies using Jarecki Crumbie Tongs continues to increase. And as the list of new users grows larger, the satisfaction of old users grows more pronounced.

The design and construction of the Jarecki Tong are responsible:

The handles are of hand-forged steel.

The bits are of hardened steel.

The heavy jaws are of Air Furnace Malleable Iron.

Design and workmanship are in accordance with Jarecki standards.

In view of these features, we unhesitatingly recommend Jarecki Crumbie Tongs to those who wish extra service plus maximum efficiency.

Carefully Manufactured Cast-Iron

Working Barrels

With 40 years of manufacturing knowledge and an equal amount of engineering experience, we couldn't make a **better** working barrel for the oil fraternity, no matter how hard we tried.

The materials that go into these barrels are inspected with special care. The workmanship is of the same kind that has made Jarecki products popular in every section of the oil and gas territory. Years of satisfactory results are the consequence. We think you also will find them efficient.

We sell everything used and needed about an oil or gas lease—Send us your specifications.

St. Louis El Dorado Pittsburgh Tulsa Eastland

Stores at all Important Points in the Oil and Gas Regions

Jarecki Manufacturing Company, Erie, Pa.

JARECKI

BURBANK'S OUTPUT 53,833,146 BARRELS

Oklahoma Field Had Produced That Much Oil Up to September 26. Will Take Long Time, However, to Pay Out as Leases Cost $36,586,400 and Drilling Wells About $36,500,000 Additional

By James McIntyre

The Burbank Field in Osage and Kay counties, Oklahoma, produced 53,833,146 bbls. up to September 26. The field was opened in May, 1920, in the northeast quarter of Section 36-27-5. The Burbank side of the field had produced 49,770,483 bbls. up to the close of this report. The Kay County extension, opened in January, 1923, had produced 4,062,663 bbls.

The Gypsy Oil Co. continues to be the largest producer in the field. That company's 165 producing well in the Osage side of the field had yielded a total production of 11,239,459 bbls. from 17 leases, (2,720 acres) costing at auction $9,412,200. The Phillips Petroleum & Skelly Oil Co. in partnership, had 142 wells producing on 12 leases (1,920 acres), costing $9,617,100, which had yielded 8,718,133 bbls. The Carter Co. alone has 126 wells on 12 leases, (1,920 acres), costing $2,699,400, which have produced 7,899,813 bbls., but it is a partner in other leases in the field, and the Carter Oil Co. and Gardner Petroleum Co.'s 15 wells on one lease costing $5,200 had produced 980,490 bbls.; the Carter Oil Co. and Tidal Oil Co.'s 38 wells on 4 leases, costing $405,100 had produced 1,337,695 bbls., and the Carter Oil Co. and Tidal-Osage Oil Co., with 16 wells on 1 lease, costing $26,000, had 801,243 bbls. production up to the close of this review.

The Prairie Oil & Gas Co. with 7 leases, costing $3,110,000, and with 90 producing wells thus far drilled, had 4,567,651 bbls. production. The Sinclair Oil & Gas Co. with 9 leases, costing $3,797,300, and with 129 producing wells, was credited with 4,863,423 bbls. production.

Million-Barrel Leases

The last previous general review of the production of the Burbank Field, which brought it up to July 17, showed 10 properties as having produced over 1,000,000 bbls. each. None have been added to this since, and only four other leases are above the 900 000-bbl. mark. Considering the amount paid in bonus to the Osage tribe, the lease of Clint Moore & Co., more familiarly known as Simons, Moore and others, holds the palm. This property cost Mr. Simons $800 as a wildcat quarter section, and it had produced up to September 26, 1,069,416 bbls. of crude. There are leases in the field that cost over $1,000.000 that have not done as well and which have been fully drilled up. Of the 10 million-barrel leases thus far developed in the field five cost over $1,000,000 while four were great bargains, costing respectively $1,300, $2,100, $2,000 and $800. The tenth lease in the million-barrel class cost $800,000.

For many weeks the Burbank Field has been the object of a conservation movement, which if followed in all the other big fields in the country, would undoubtedly have resulted in a better crude market at this time and a better general condition in the oil business. Burbank operators got together in the early days of the slump in oil prices, when California production was threatening the oil market with complete demoralization, and instituted a shut down movement which was made to mean something. There were only 31 more wells producing on the Osage side of the Burbank Field on September 26 than on July 17. About 75 wells have been shut down that could have been completed and the number of wells drilling has not varied much from week to week and these have been kept down to about a dozen. On the Kay County side of the field the same conservative operating methods have been observed. Unlike Powell in Texas this very rich development has been nursed along slowly. Burbank operators have shown to some degree how the industry can work out its own problems when threatened with over production. Every lease on both sides of the field could easily have been drilled up by this time had Burbank operators engaged in a wild orgy of operations regardless of how they would take care of production or how much they would realize from the oil they could sell.

Long Time Paying Out

The Burbank Field in Osage County will be a long time in paying out. The leases cost $36,586,400 and the producing wells drilled cost, at the lowest, about $36,500,000 additionally. Adding to this the operating cost, the expense of building lease camps, storage, royalty, etc., will be seen that a production of less that 50,000,000 bbls. of crude oil a low average market price has not nearly been sufficient to meet the outlay of capital. The low-priced leases bought before the Marland Refining Co. opened the field proved bonanzas, but a study of the accompanying table will show that these were few in number. Some of the high priced properties were almost absolute failures as the table will also show.

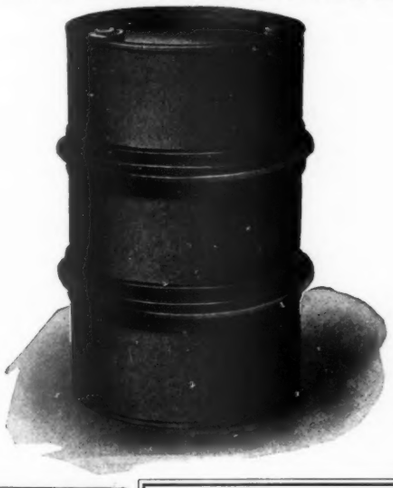
PRODUCTION RECORD OF THE BURBANK FIELD, OSAGE AND KAY COUNTIES UP TO SEPTEMBER 26

	No. Wells	Bonus Price	Total Prod.
Carter Oil Co.:			
NW 12-26-5, November, 1922	2	$ 500,000	2,972
SE 5-26-6, February, 1921	16	900	976,369
SE 8-26-6, March, 1922	16	351,000	496,374
NE 8-26-6, November, 1921	16	300,000	474,759
NE 9-26-6, November, 1920	10	500	386,453
NW 9-26-6, September, 1920	7	3,600	428,939
SW 9-26-6, January, 1921	12	3,000	727,353
SE 9-26-6, February, 1921	16	3,000	485,137
NW 16-26-6, December, 1920	16	5,400	529,759
SW 16-26-6, June, 1923	5	380,000	64,587
SE 16-26-6, June, 1923	3	127,000	22,994
NE 22-27-5, June, 1923	7	1,025 000	590,199
Carter Oil Co. and Tidal Oil Co.:			
NW 17-26-6, November, 1922	5	235,000	36,765
SW 31-27-6, February, 1921	16	7,100	583,829
SE 31-27-6, February, 1921	16	3,000	713,287
NE 33-27-6, August, 1922	1	160,000	2,750
Comar Oil Co.:			
NE 2-26-5 November, 1922	7	410,000	195,646
Cosden O l and Gas Co.:			
NE 6-26-6, November, 1921	16	310,000	594,333
NW 8-26-6, December, 1921	16	115,000	441,986
SW 8-26-6, April, 1922	15	300,000	188,884
NE 17-26-6, May, 1922	16	500,000	293,304
SE 17-26-6, June, 1923	5	11,000	36 911
Devonian Oil Co.:			
SW 5-26-6, April, 1921	16	700	727,366
Gypsy Oil Co.:			
NW 5-26-6, May, 1921	16	900	788,300
NW 7-26-6, August, 1922	7	175,000	165,461
NW 24-27-5, March, 1923	13	1,310,000	1,654,947
SE 24-27-5 September, 1922	16	1,600,000	1,815,732
NW 19-27-6, March, 1923	13	1,100,000	765,731
SE 19-27-6, September, 1922	16	1,050,000	1,328,774
SW 28-27-6, June, 1922	9	280,000	239,487
NW 28-27-6, December, 1922	1	205,000	225
SE 28-27-6, August 1922	1	61,000	6,978
NW 29-27-6, September, 1922	16	1,000,000	846,633

P.I.W.
STEEL PLATE CONSTRUCTION

That Rugged Chime

is the reason "Presteel" Drums come back again, time after time, from long hard trips. It's this chime that holds its contents intact long after the ordinary package has passed to the scrap heap.



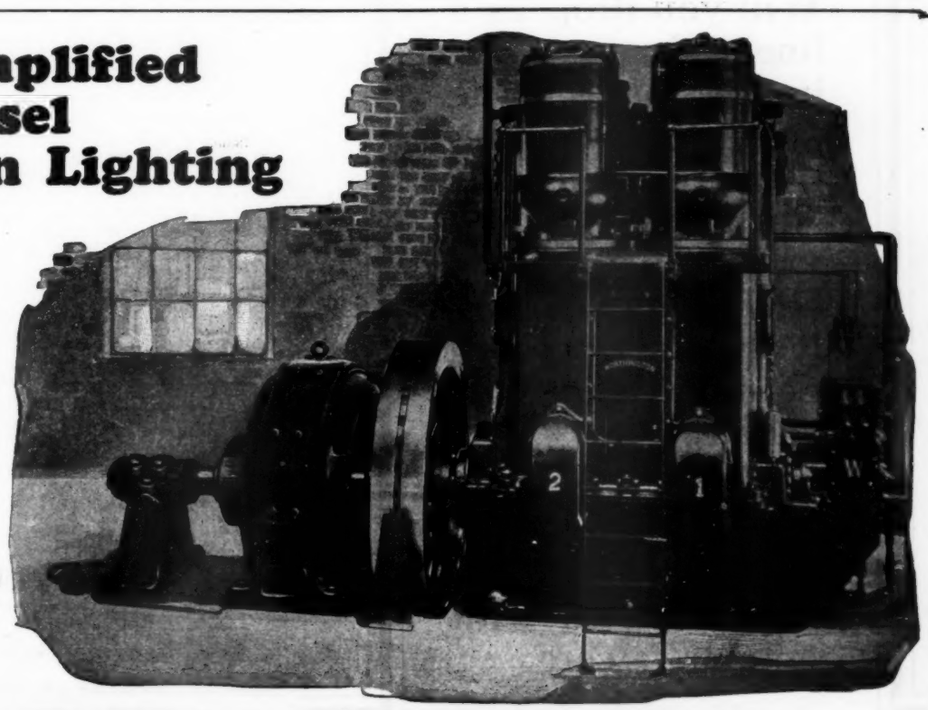
Because the chime is the vulnerable point on a container P. I. W. leaves nothing undone to make it perfect. The chime ring is a heavy section of specially rolled steel. The head and shell fit into a snug recess in this ring and the extending lip of the ring is then rolled down compactly making a tight package of extreme long life.

"Presteel" Light Gauge Drums, 15, 30, 50 and 55-gal. capacities.
"Presteel" I. C. C. Drums, 30, 55 and 110-gal. capacities.
"Presteel" Special Drums, 150 and 175-gal. capacities.
"Gem" Bilged Steel Barrels, black, galvanized or tinned, 55-gal. capacity only.

The Petroleum Iron Works Company
Pressed Steel Products Dept.
Sharon, Pa.
New York St. Louis Houston Tulsa Casper San Francisco

P. I. W. STEEL PLATE PRODUCTS ARE USED IN THE PETROLEUM, GAS, MINING, RAILWAY, IRON AND STEEL, WATERWORKS, ENGINEERING AND ALLIED INDUSTRIES.

The Simplified Diesel For Station Lighting



The Worthington Diesel shown at the right is exceptionally well adapted to station lighting and for driving auxiliaries. It is a two-cycle, solid-injection full Diesel of greatly simplified design and will operate on any commercial crude or fuel oil. Starts cold, has no hot plates or sparking devices. Built in 30 and 60 H. P. and larger sizes for either D. C. or A. C. generators.

Worthington Pump and Machinery Corporation
Executive Offices: 115 Broadway, New York City
Branch Offices in 24 Large Cities

WORTHINGTON

W-196.4

THE first International Petroleum Congress ever held, Tulsa, Okla., October 8th to 14th, is over.

You were there: Will you drop us a line giving us your impression as to the value of the exhibition in general? And, you may add your opinion of DREADNAUGHT Rotary Drilling Equipment in particular.

No names will be given out and we will respond with suitable reward.

Beaumont Iron Works Co.
Beaumont, Texas, U. S. A.

NE 31-27-6, January, 1921	16	1,300	1,357,061
NW 32-27-6, January, 1922	16	226,000	736,301
SW 32-27-6, October, 1921	16	505,000	892,700
NE 10-27-5, June, 1923	1	23,000	116,686
SE 22-27-5, June, 1923	2	670,000	166,291
NE 23-27-5, June, 1923	7	1,195,000	470,813
Kewanee Oil and Gas Co.:			
NE 4-26-6 March, 1922	10	205,000	301,590
SE 7-26-6, November, 1922	2	275,000	8,704
Laurel Oil & Gas Co.:			
NW 1-26-5, May, 1921	16	3,000	613,569
Gardner Petroleum Co. and Carter Oil Co.:			
SE 1-26-5, January, 1921	15	5,200	980,690
Gardner Petroleum Co. and Marland Oil Co.:			
NE 12-26-5, September, 1922	5	325,000	95,637
Lorraine Petroleum Co.:			
SE 6-26-6, February, 1922	14	100,000	321,300
Midland Oil Co.:			
NW 15-26-6, May, 1922	5	61,000	85,772
Waite Phillips Co. and Delmar Oil Co.:			
SE 10-27-5, June 1923	1	43,000	327,754
Waite Phillips Co.:			
SE 35-27-5, October, 1922	10	665,000	238,900
SE 33-27-6, April, 1922	4	115,000	77,360
SE 15-27-5, June, 1923	6	1,325,000	392,820
Phillips Petroleum Co.:			
NE 35-27-5, October, 1922	9	495,000	158,651
NW 23-27-5, June 1923	3	1,005,000	244,321
Phillips Petroleum Co. and Skelly Oil Co.:			
NE 7-27-6, May, 1922	7	155,000	148,700
SE 23-27-5, April, 1923	11	1,101,000	678,721
NE 24-27-5, March, 1923	12	1,245,000	907,319
SW 24-27-5, October, 1922	16	1,005,000	1,759,655
NE 25-27-5, June, 1922	16	1,335,000	531,949
NW 25-27-5, June, 1922	14	1,160,000	637,734
SW 25-27-5, February, 1922	5	6,100	520,704
SE 25-27-5, August 1921	14	57,000	776,020
SE 26-27-5, November, 1922	5	805,000	193,517
SW 19-27-6, September, 1922	16	1,585,000	1,436,318
NE 29-27-6, September, 1922	11	600,000	483,942
NW 30-27-6, April, 1922	16	663,000	652,396
Prairie Oil & Gas Co.:			
NW 4-26-6, October, 1921	16	360,000	930,994
NW 10-26-6, October, 1921	5	200,000	304,940
SW 10-26-6, December, 1921	6	200,000	197,302
NE 30-27-6, March, 1922	16	700,000	787,945
SE 30-27-6, December, 1921	16	250,000	621,452
SE 32-27-6, March, 1922	16	800,000	1,098,792
SW 33-27-6, April, 1922	16	600,000	636,778
Producers & Refiners Corp. and Marland Oil Co.:			
NE 16-26-6, January, 1922	12	136,000	209,482
Producers and Refiners Corp.:			
NW 31-27-6, November, 1920	16	2,100	1,245,180
Roxana Pet. Corp.:			
SW 4-26-6, February, 1921	14	251,000	938,904
Roxana Pet. and Marland Oil Co.:			
NW 6-26-6, April, 1921	16	6,600	295,000
NE 36-27-5, May, 1920	14	2,000	1,245,142
SE 36-27-5, December, 1920	13	7,000	509,024
Simons, Moore and others:			
SW 1-26-5, February, 1922	13	3,100	260,360
NE 5-26-6, April, 1921	16	800	1,069,616
Sinclair Oil & Gas:			
NE 1-26-5, May, 1921	16	5,800	506,900
NE 15-27-5, June, 1923	4	300,000	256,913
SW 36-27-5, October, 1921	17	1,500	733,216
NE 19-27-6, March 1923	14	615,000	254,930
SW 20-27-6, March, 1923	14	415,000	244,813
SW 29-27-6, March, 1922	16	650,000	769,935
SE 29-27-6, June, 1922	16	410,000	725,336
NE 32-27-6, March, 1922	16	600,000	894,355
NW 33-27-6, June, 1922	16	300,000	418,197
Skelly Oil Co.:			
SW 23-27-5, June, 1923	11	740,000	67,715
Tidal Osage Oil Co.:			
SE 4-26-6, October, 1921	11	95,000	384,831
SW 6-26-6, February, 1921	14	206,000	434,893
Tidal Osage and Carter Oil Co.:			
SW 30-27-6, August 1921	16	26,000	801,243
Twin State Oil Co.:			
NW 36-27-5, February, 1921	7	800	143,167
Total		$36,586,400	49,770,483
Burbank Extension, Kay County			
Comar Oil Co.:			
N½, SW¼, 10-27-5, May, 1923	3	.....	414,073
SW 16-27-5, April, 1923	2	.....	539,721
S½, NE 21-27-5, April 1923	1	.....	12,293
Sapulpa Refining Co.:			
SW 15-27-5, January, 1923	5	.....	432,698
Waite Phillips Co.:			
NE 21-27-5, March, 1923	2	.....	25,109
N½, SE 9-27-5, May, 1923	2	.....	381,906
Phillips Pet. and Skelly Oil Co.:			
SE 16-27-5	2	.....	26,516
W½, NW 22-27-5, March, 1923	4	.....	156 727
E½, W½, 22-27-5, May, 1923	6	.....	459,907
Twin State Oil Co.:			
NW 15-27-5, April, 1923	5	.....	330,273
Carter Oil Co.:			
S½, SW 10-27-5, June, 1923	3	.....	539,725
Cosden Oil & Gas Co.:			
NW 10-27-5, May, 1923	2	.....	272,496
Gypsy Oil Co.:			
SE 4-27-5, May 1923	2	.....	55,425
W½, 16-27-5, May, 1923	2	.....	40,290
Phillips Petroleum Co.:			
NE 16-27-5, August, 1923	1	.....	33,871
S½, SE 9-27-5, May, 1923	3	.....	202,853
NE 9-27-5, August, 1923	1	.....	25,361
Sinclair Oil & Gas Co.:			
SW 9-27-5, May, 1923	1	.....	50,610
George Boles:			
E½, NW 4-27-5, August, 1923	1	.....	28,091
Pure Oil Co.:			
E½, NE 16-27-5, August, 1923	2	.....	33,596
Laurel Oil & Gas Co.:			
SW 4-27-5, August, 1923	1	.....	770
Roxana Petroleum Corp.:			
NE 4-27-5, August, 1923	1	.....	25,397
Total Kay County	52	.....	4,962,643
Grand Total Burbank Field		.....	53,533,011

NEW LOS ANGELES OIL PLANT

The immediate establishment of a $1,500,000 oil plant at Los Angeles Harbor and construction of two $1,000,000 tankers for intercoastal trade has been announced by Herbert Blumenthal, president of the Union Tank Ship Corp., of New York. The announcement was made aboard the new tanker Bidwell, which made a demonstration cruise around the outer harbor, carrying a large group of prominent Los Angeles shipping and oil men. The details, Mr. Blumenthal said, would be made known later. He declared work would begin at once.

OIL IN KAMCHATKA

According to the Siberian Mining Department the "existence of oil in the Island of Sakhalien in workable quantities has been established, and in addition, there is ever yindication of the existence of oil in Kamchatka."

INDUSTRY TO BENEFIT BY BIG OIL SHOW

(Continued from Page 35)

gest thing ever put over for oil industry interests and Tulsa.

International Supply Co.—E. G. Blaylock, Salesman; C. Shupert, Assistant Sales Manager; "Fine! Fine! Fine!"

American Car & Foundry Co.—Thomas C. Andrews, Sales Agent; "A wonderful education for those of the petroleum industry."

Oklahoma Iron Works—John W. Sloan, Jr., Sales Manager; "Great success. Will be better every year."

Braden Co.—J. G. Michaelson, General Manager; "Astonishing how it has been put over in spite of conditions."

The C. & G. Cooper Co.—T. F. Hudgins; F. H. Thomas, Vice President; "Believe it a thorough success and hope for its continuance."

Interstate Pipe Co.—J. B. O'Kee, Jr., Salesman; "A liberal education to anyone whether in or out of the oil fields."

McGraw-Baughman-Bearly Lumber Co.—H. L. Dickson, Salesman; F. D. Bearly, Vice President and General Manager; "Nothing to equal it has ever been held. I've seen them all."

Oklahoma Natural Gas Co.—N. A. Newton, Manager Service Department; "Big, educational, a wonderful success and should be perpetuated."

Erle P. Halliburton—Erle P. Halliburton, Sole Owner; "An absolute success, but too crowded."

Associated Supply Co.—Elmer H. Jones, Sales Manager; "Surprising."

Goodyear Tire & Rubber Co.—W. J. Brunk, Salesman; "Far beyond my expectations."

Rig Equipment Co.—R. L. O'Brien; "O. K. Fine opportunity for us to demonstrate derrick and bull wheels—new to this territory."

Floridin Co. Bleaching Clay—W. L. MacGowan, Vice President and General Manager Floridin Co.; "A marvel of excellence in quality and extent. Should be made permanent."

Blackman-Hill-McKee Machinery Co.—Arlington Nuetzel, Representative; "Excells my expectations in every way. Is well deserving of repetition."

De Laval Separator Co., De Laval Steam Turbin Co.—Paul S. Reed, District Sales Representative; "Great success."

Baldwin Chain & Manufacturing Co.—George T. Fix, Southwestern Representative: "Has been great success. We will have enlarged space and more elaborate exhibit next year."

Pyle-National Co.—C. T. Tewkesbury; "The most complete and educational exhibits of oil industry equipment ever shown."

Standard Machine & Tool Co.—J. R. McCoy, President; J. E. Morgan, Vice President; "Well managed, grand displays and wonderful interest shown. We are well satisfied."

Smith Separator Co.—M. F. Waters, Manager; "Good thing and should be an annual affair."

The Foxboro Co., Inc.—Willis C. Brown, District Manager; "We're for it! It's great!"

Black, Sivalls & Bryson, Inc.—W. H. Elliott. Assistant Manager; "Fine! We hope to help make it larger next year."

Mason Manufacturing Co.—R. C. Mason; J. W. Minnis: "Best I ever saw. None excelled."

Midwest Piping & Supply—J. W. Moffett, Secretary; "Arrangements good, business satisfactory. Would suggest time be cut to five days."

Truscon Steel Co.—W. L. Quigley, Special Representative; "The biggest ever in this section of country."

James L. Darnell, Engineer—L. R. Klumpp, Engineer; "A fine one filled with interest throughout."

Oxweld Acetylene Co.—C. E. Ziesel, Assistant Sales Manager; "A successful and well conducted enterprise."

Robinson Packer Co.—W. G. Long, Treasurer: "She's a binger."

M. B. Skinner Co.—F. A. McMurray, President; "Most complete ever organized and of greatest value to the exhibitor."

Oklahoma Steel Castings Co.—J. R. Johnston, Sales Engineer; "Great success; better than I expected."

Hills McCanna Co.—A. H. Noyes, President; "AAA1."

Axelson Machine Co.—George M. Grooms, Factory Representative; "Very educational and big boost for the oil industry."

Triangle Blue Print & Supply Co.—H. V. Lindy, Manager; "A complete success with far reaching results to the oil men."

B. & C. Machine & Foundry Co.—Earl W Miller, Sales Manager; "We will exhibit at next show and have a larger space."

Metal Barrel Corp.—Sherman G. Long, General Manager; "Fine, excellent; we are with you."

Keuffel & Esser Co.—H. E. Bowman, Traveling Representative; "A good medium to meet old friends and make new ones."

American Well & Prospecting Co.—Edgar Rittersbacher, Treasurer; "Grand success."

Oil Conservation Engineering Co.—Stough Tank Erecting Co., H. R. McCreary; "A wonderful opportunity for both oil people and manufacturers of oil equipment."

Sullivan Machinery Co.—J. S. Mitchell, Engineer; "Very good indeed."

Palmer Specialty Co.—B. F. Palmer; "A complete success."

Hinderliter Tool Co.—Herman B. Hendershot, Secretary and Sales Manager; "Only Tulsa could make it the success it is.

St. Louis Surfacer & Paint Co.—William T. Deacon, A. W. Deacon, Vice Presidents; "Too much credit cannot be given the directors for their wonderful work in making it a great success."

The Midland Supply Co.—R. B. Black, Specialty Engineer; "The users of the appliances have seen; wonderful."

Oil Conservation Engineering Co.—Steve Brooks, President; "Good—best ever."

Armstrong Bros. Tool Co.—Paul Armstrong, President; "Wonderful."

Sinclair Refining Co.—Stanley D. White, Assistant Chief Chemist; "A great success from an educational standpoint."

Cosden & Co.—W. E. Espey, Chief Experimental Chemist; "A big surprise to all and the greatest educational and advertising exhibition in Tulsa's history."

Cross Process—C. W. Chapin, Operation Department; "A revelation; has all the characteristics of an old established exhibition."

The Braun Corp.—M. J. Holmes, Sales Manager; "Great."

The Rossendale-Reddaway Belting & Hose Co.—F. W. Edwards, Sales Manager; "The greatest ever attempted and put across."

Wilson Oil Tools Corp.—J. V. McGinity, Mid-Continent Representative; "Wonderful."

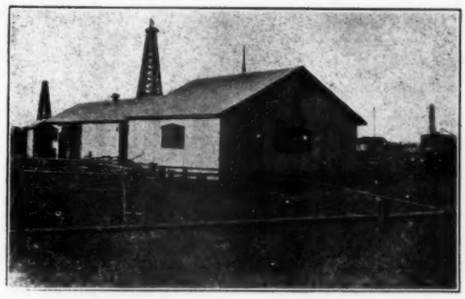
Frick-Reid Supply Co.—J. L. Shakely, General Sales Manager; "Fine. Best exhibit ever attended."

Power Engineering & Ignition Co.—M. C. Elsworthy, President and Manager; "Fine. Biggest thing Tulsa has ever had. Hope it will become annual affair."

Whitlock Cordage Co.—W. P. Whitlock, Jr., Secretary; "Great."

Maloney Tank Manufacturing Co.—J. S. Warren; "Wonderful success. By all means perpetuate it."

Axelson Machine Co.—J. C. Axelson, General Manager; "Most complete success of anything of its kind ever attempted."



Power House in Hewitt Field from which an 18' Reid Power handles nineteen 2,000' Wells

Well Done

Fidelity's a virtue that enobles
E'en servitude itself.
—*MASON.*

NOW AND then some man or some aggregation of men invents a boon to industry, protects it with basic patents granted by a benevolent government, and promulgates it through the years.

Others may come and go with imitations, but they are neither fired with the inspiration of creative genius nor urged by the necessity for maintaining a standard.

In the Hewitt Field, on the Dillard Farm in Section 22-4-2, operated by Messrs. Westheimer & Daube, is an 18' Reid two-eccentric All Metal Band Wheel Power, driven by a 70 h.p. gas engine.

This Reid Power is now handling nineteen 2,000' producing wells scattered about a 120-acre lease. Our engineering crew installed it approximately one year ago, and no repairs or replacements have been made.

Not many powers of this size in the Mid-Continent Fields are handling so heavy a load with never a backward look.

But Reid Powers are noted for faithful service over long periods of time. They are built to the world's highest standard by men fired with the inspiration of creative genius. They are made not only to sell but to serve.

In Oil Country Equipment—the most HUMAN Organization in America

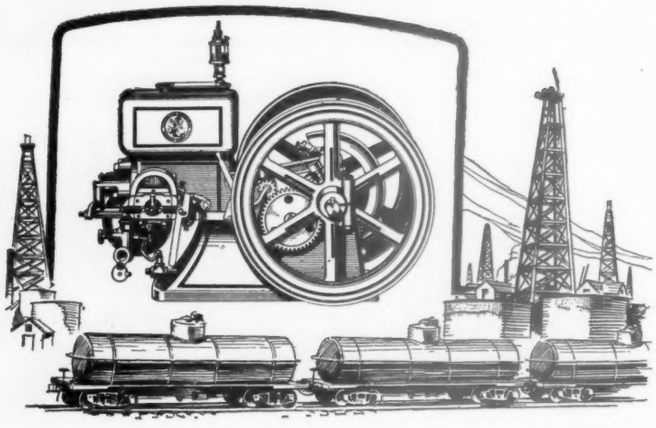
Frick-Reid Supply Co.

Tulsa, Okla. Pittsburgh, Pa.

West of the Mississippi—Stores Everywhere

around the outer harbor, carrying a large

existence of oil in Kamchatka."



Power for the isolated well!

It is often a problem to make the small production well, at some distance from the main pumping power, pay. Power for this well must be sure and dependable but at the same time as economical as possible.

A Hercules slow pumping Oil Well Jack will make even the isolated well pay. Mounted on heavy steel beams, the jack is directly connected with the engine through the clutch. It is designed so that it can be clamped on the casing and the well pumped vertically. Or, the outfit can be set away from the well and pumped by placing pull blocks to the shackle rods leading to the well.

These outfits are equipped with 3 to 5 H. P. Hercules gasoline or kerosene engines or 7 H. P. Hercules Oil engines. They are built sufficiently heavy to operate wells up to 1500 feet. Sturdy Hercules construction enables them to withstand the heavy duty and continuous oil field service.

There are other Hercules Engines—both gasoline and kerosene—ranging from 1½ to 12 H. P. Whatever power driven equipment you need it will pay you to specify Hercules power. Each engine is guaranteed.

There are Hercules Agencies throughout the oil fields. Service stations everywhere. Consult us about your power problems.

The Hercules Corporation

Engine Division, Dept. E, Evansville, Ind.

HERCULES ENGINES

NORTH CENTRAL TEXAS

(Continued from Page 44)

2,700 feet; Dalsa Oil Co.'s No. 1 Beck, shut down showing rainbows at 1,675 feet; Humble Oil & Refining Co.'s No. 1 Wild, drilling in brown shale at 2,180 feet; Lacy and others' No. 2 Lee, testing a casing seat at 1,640 feet; Landreth and others' No. 1 Moore, drilling in lime at 3,300 feet; Magnolia Petroleum Co.'s No. 2 George, drilling at 2,450 feet; No. 12 Rush, at 670 feet; No. 4 Walker, at 485 feet; M. & M. Oil Co.'s No. 1 Boyett, showing 3,000,000 feet of gas and drilling at 1,383 feet; Republic Production Co.'s No. 3 Jones, fishing for lost tools at 3,870 feet; Royal Palm Oil Co.'s No. 1 Newham, drilling by tools at 3,050 feet; Scott and Bateman's No. 1 Davis, drilling at 1,505 feet.

Eastland County

Drilling—Ablon and others' No. 1 Collins, drilling in rock at 2,035 feet; Beckett and others' No. 1 Allen, drilling at 600 feet; Brothers Oil Co.'s No. 2 Rogers, drilling in a sandy lime at 2,835 feet; Clayton and Turner's No. 1 Steel, drilling at 605 feet; Donnelly Bros. No. 1 Allen, drilling in black lime at 3,255 feet; Eby and others' No. 5 Miller, moving in tools; Kokomo Petroleum Co.'s No. 1 Harris, drilling at 605 feet; Lone Star Gas Co.'s No. 2-A Hogg, drilling in blue shale at 2,265 feet; No. 1 McMillan, has tapped the gray lime and drilling at 3,055 feet.

Wildcats

Mitchell County: Drilling—Colorado Tex Oil Co.'s No. 2 Foster, drilling by a bit at 2,620 feet; Fensland Oil Co.'s No. 1 Badgett, drilling at 815 feet; Kelsay and others' No. 1 Badgett, swabbing 75 bbls. has 2,000 feet of oil in the hole, will probably be shot at 3,100 feet; Henry Reilly's No. 1 Morrison, drilling at 3,015 feet; Sloan and others' No. 1 O'Neil, at 2,715 feet; California Co.'s No. 1 Morrison, recementing casing at 3,905 feet; Underwriters Producing & Refining Co.'s No. 5 Morrison, fishing for a bit at 2,720 feet.

Palo Pinto County: Completion—Mutual Oil Co.'s No. 1 Huey, dry at 3,730 feet.

Drilling—Pender Production Co.'s No. 1 Slemmons, showing rainbows of oil after a shot of 10 quarts at 3,560 feet; Thomas and others' No. 1 Thomas, has a fishing job at 3,304 feet; Upham Gas Co.'s No. 3 Watson, drilling at 3,070 feet.

Baylor County: Drilling—Waggoner and others' No. 1 Portwood, laying a water line, total depth 1,340 feet.

Clay County: Drilling—Clark and others' No. 1 Turner, shut down and may be abandoned at 3,707 feet; Dunning and others' No. 1 Hapgood, underreaming 6⅝-inch casing at 3,050 feet; Gulf Production Co.'s No. 1-A Boddy, carrying 8¼-inch casing at 1,840 feet; Knox and Finley Development Co.'s No. 1 Scott, swaging 6⅝-inch casing on top of sand showing some oil at 1,150 feet; Lone Star Gas Co.'s No. 7 Edrington, drilling at 1,540 feet; Nebraska Oil & Gas Co.'s No. 1 Myers, fishing for tools at 3,283 feet; Nix Moore and others' No. 1 Hull, coring an oil sand at 1,144 feet; John O'Neil's No. 1 Kuykendall, drilling at 1,905 feet; Rose and others' No. 1 Stein, coring and testing a thin sand at 910 feet.

Hardeman County: Completions—Mid-West Petroleum Co.'s No. 1 Milkey, dry at 2,518 feet; Nee-No-Shee Oil Co.'s No. 1 Stewart, dry at 2,660 feet; Sigler Oil Co.'s No. 1 Wheat, dry at 2,730 feet.

Jack County: Drilling—Duncan and others' No. 1 Woodward, drilling below 650 feet; Dunn and others' No. 1 Humphreys, drilling at 3,565 feet.

Montague County: Drilling—The Texas Co.'s No. 1-A Gist, drilling a gas sand at 640 feet; Amerada Oil Corp.'s No. 1-A Beasley, underreaming 8-inch casing at 2,480 feet; Gulf Production Co.'s No. 1 Benton, drilling at 1,540 feet; Humphreys Oil Co.'s No. 3 Maddox, cemented 8-inch casing and shut down at 1,952 feet; Mascho Oil Co.'s No. 1 Howell, carrying 10-inch casing to 1,400 feet; Texon Oil Co.'s No. 1-A Crenshaw, shut down for 8¼-inch casing at 1,200 feet.

Wilbarger County: Drilling—Electra Gulf Oil Co.'s No. 1 King, drilling in brown shale at 2,150 feet; Hobbs Brothers' No. 17 Yarborough, drilling at 945 feet; Noble Oil Co.'s No. 1 Waggoner, drilling at 800 feet; South Vernon Oil Co.'s No. 1 Stephens, underreaming 10-inch casing at 1,280 feet; Mike Sullivan's No. 1 Waggoner, will shoot casing and probably abandon at 2,005 feet; Wurt Franklin's No. 1 Womack, shut down making repairs to oil pump at 2,042 feet.

PRODUCTION REPORT

Week Ending October 11, 1923

Burkburnet	
American Refining Co.	285
Barkley & Meadows	1,890
Humble Oil & Ref. Co.	765
Gulf Prod. Co.	1,710
Magnolia Pet. Co.	3,780
Middle States Oil Corp.	240
McMahon Oil Co.	525
Okla. Pet. & Gas Co.	335
Panhandle Ref. Co.	485
Sinclair Oil & Gas Co.	50
W. G. Skelly	300
The Texas Co.	765
Texhoma Oil & Ref. Co.	500
Miscellaneous	12,905
Total	24,645
Electra	
Empire Gas & Fuel Co.	1,870
Humble Oil & Ref. Co.	145
Griswold Oil Co.	655
Gulf Production Co.	1,045
Magnolia Pet. Co.	6,610
Middle States Oil Co.	185
McMahon Oil Co.	220
The Texas Co.	6,644
Texhoma Oil & Ref. Co.	2,675
Miscellaneous	6,500
Total	24,840
Iowa Park, Archer County and Petrolia	
Iowa Park—	
American Ref. Co.	50
Griswold Oil Co.	85
Gulf Production Co.	65
Middle States Oil Co.	5
Texhoma Oil & Ref. Co.	45
Miscellaneous	2,035
Archer County—	
American Ref. Co.	420
Griswold Oil Co.	265
Gulf Production Co.	445
Humble Oil & Ref. Co.	140
The Texas Co.	585
Texhoma Oil & Ref. Co.	2,165
Miscellaneous	14,340
Petrolia—	
Gulf Prod. Co.	80
Magnolia Pet. Co.	50
The Texas Co.	90
Miscellaneous	300
Total	21,015
Stephens County	
Empire Gas & Fuel Co.	50
Gulf Production Co.	1,825
Humble Oil & Ref. Co.	1,695
Magnolia Petroleum Co.	865
Mid-Kansas Oil & Gas Co.	1,720
Prairie Oil & Gas Co.	850
Sinclair Oil Co.	190
The Sun Co.	250
The Texas Co.	3,300
T. & P. Coal & Oil Co.	1,035
Miscellaneous	8,375
Total	20,135
Eastland County	
Empire Gas & Fuel Co.	20
Gulf Prod. Co.	830
Humble Oil & Ref. Co.	160
Magnolia Pet. Co.	830
Mid-Kansas Oil & Gas Co.	30
Panhandle Ref. Co.	470
Prairie Oil & Gas Co.	605
Sinclair Oil Co.	400
The Sun Co.	40
The Texas Co.	240
T. & P. Coal & Oil Co.	995
Miscellaneous	3,550
Total	7,870
Other Fields	
Strawn—	
T. & P. Coal & Oil Co.	230
Miscellaneous	440
Moran—	
Empire Gas & Fuel Co.	250
Humble Oil & Ref. Co.	795
The Texas Co.	390
Texhoma Oil & Ref. Co.	330
Miscellaneous	2,820
Coleman County—	
Miscellaneous	160
Brown County—	
Miscellaneous	585
Comanche-Eastland—	
Humble Oil & Ref. Co.	360
Empire Gas & Fuel Co.	10
Magnolia Petroleum Co.	1,345
Mid-Kansas Oil Co.	315
Prairie Oil & Gas Co.	125
Sinclair Oil & Gas Co.	70
The Texas Co.	250
T. & P. Coal & Oil Co.	115
Miscellaneous	3,520
Young County—	
Gulf Production Co.	210
North American Ref. Co.	160
Sinclair Oil & Gas Co.	235
Oklahoma Pet. & Gas Co.	105
Panhandle Ref. Co.	510
The Texas Co.	220
Miscellaneous	3,845
Mitchell County	800
Reagan County	150
Jack County	35
Total	18,010
Toal all fields	116,305
Total last week	111,855
Gain	4,450

BYERS
GENUINE WROUGHT IRON
PIPE

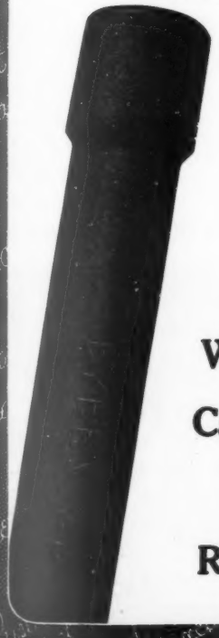
RUST-RESISTANCE

is the biggest word in pipe durability

Not long ago, the superintendent of a large gas company had occasion to pull the casing from some 8 or 10 old gas wells. In all but two of these, the casing was Byers, and was pulled without the loss of a foot of pipe. In the remaining two wells, the steel casing pulled apart repeatedly, having suffered so severely from corrosion as to be unable to stand the stress of pulling, and very little of the pipe was fit to use again.

The life of casing, line pipe, and tubing, largely depends on their rust-resistance. Byers' genuine iron pipe is known to **"wear"** better than steel pipe, largely because, after years of service, it suffers so little from rust that it retains its original physical strength and clean, accurate threads.

A. M. BYERS COMPANY
Established 1864
PITTSBURGH, PA.



Representatives:

S. D. OLIPHANT, Tulsa, Okla.

J. A. ARMSTRONG, Los Angeles, Calif.

E. A. SMALL, Jr. 1614 Carter Bldg., Houston, Texas

Genuine
Wrought Iron
Casing Tubing
Line Pipe
Refinery Pipe

Where no road exists

Through tropical wilderness, over mountains, or across desert, the "Caterpillar"* makes its own roads and then hauls over them. It transports heavy cargoes of boilers or other machinery, drilling rigs, derrick timbers, pipe, or other supplies, and in numerous fields, is the only power that can be used.

Because the "Caterpillar" is able to climb steep grades, to pull in sand or mud, or plow through snow, producers and contractors find it indispensable in the construction of pipe lines and in contract hauling.

Winch and cable attachments provide ready power for loading, and for general construction work. Holt engineers, with long and continued experience in cross country transportation, have perfected the "Caterpillar" for the severest oilfield work. The "Caterpillar" is backed by Holt's positive guarantee of satisfaction, and a complete, efficient service organization.

There is but one "Caterpillar"
—Holt builds it

THE HOLT MANUFACTURING COMPANY, Inc.
PEORIA, ILL.

Eastern Division: 50 Church St., New York

Branches and service stations all over the world

CATERPILLAR
Reg. U.S. Pat. Off.
HOLT
PEORIA, ILL.
STOCKTON, CALIF.

feet; Texon Oil Co.'s No. 1-A Crenshaw, Gain .....

REFINING AND MARKETING SECTION

Refining Exhibits Prominent Feature Of Oil Exposition

Although not as numerous as other branches, the exhibits of refiners and marketing organizations constituted one of the features of the International Petroleum Exposition and Congress. So much interest was displayed in their exhibits that several refiners and marketers attending the convention expressed themselves in favor of having a distinct section for their branch another year.

Cosden & Co. had one of the largest and most complete exhibits of the exposition. The company's booth was attractively lighted and decorated. All the company's products, covering practically every grade of light oils and neutrals, were shown in the exhibit. Made of wax manufactured at the refinery a miniature Washington monument was shown. The model contained over 60 pounds of wax. A large wax candle was another interesting exhibit at the booth.

The Producers & Refiners Corp. showed a full line of "Parco" products at their booth. In the booth were shown several pictures of the company's refineries located at West Tulsa and Parco, Wyo.

Miniature Refinery

The Empire Refineries, Inc., and the Crew-Levick Oil Co., a marketing subsidiary of the same interests, both had attractive exhibits. The Empire had a miniature refinery showing tanks and other equipment. The Crew-Levick Oil Co. displayed the products handled by the company and other marketing subsidiaries of the Empire interests.

The Sinclair Refining Co. exhibit consisted of a model showing a complete unit of the company's operations from the drilling well to the sale of products to the automobile owner at the service station. This was perhaps the most complete miniature unit ever shown, illustrating every important reature entering into the producing, refining and marketing of oil.

At the booth of the Sun Oil, Co. there was also a complete line of lubricating oil and greases. All companies had two or more officials or employes at the booths during the convention and several gave souvenirs to all who visited their booths. A. M. Ballard was in charge of the Sun Oil Co. booth; D. C. Wixson, Producers & Refiners Corp.; C. E. Holt, Cities Service Oil Co.; S. W. Pierce, Empire Refineries, Inc.; W. E. Epsy, Cosden & Co., and H. M. Smith, Sinclair Refining Co.

Model Laboratory

In addition to these exhibits Marland Refining Co., Cosden & Co., Tidal Refining Co., and the Empire Refineries, Inc., had a large booth in which was assembled a model laboratory. Chemists were in charge and made practical demonstrations of apparatus used in the testing of refined products. Many jobbers and refiners took advantage of the opportunity to become better acquainted with the modern methods of the physical and chemical laboratories of the industry.

CHICAGO SALES CHANGES

CHICAGO, Oct. 12.—Moore Refining Co. will hereafter handle the sale of its products from its Chicago office, the contracts with the Taxman Refining Co. to act as sales agents having been for one year only. The Taxman Refining Co. will act as the sole sales agents for Cosden & Co. and will handle Cosden products exclusively.

FILLING STATION COMPETITION BETWEEN LEADING COMPANIES

Keen competition between large oil marketing companies in retailing gasoline is resulting in extravagant overdevelopment of facilities at investments running into millions of dollars, says the Wall Street Journal, which adds that the condition is country wide in scope and has resulted in a heavy duplication of facilities. It has extended, it says, even to those Standard Oil units which hitherto were content to distribute through leased equipment to individuals. These companies are now spending big sums in real estate and the erection and maintenance of elaborate "drive-in" stations. In other instances, big companies are financial backers of strings of stations operated under other names.

While large sums are spent on stations it is generally conceded by oil officials that there is little or no profit in their actual operation, owing to heavy investment and overhead. That the saturation point is not in sight in company-owned stations is due to the fact that some big companies got a late start and when one company opens an "anchor" station in a city or town each of its large competitors do likewise.

Realty Biggest Cost

The biggest investment is in real estate. Big companies do not want to equip a leased site with an expensive plant, develop trade and at the end of the lease have the owner get an appreciation in price by selling to a competitor.

One company has just paid $50,000 for a desirable location in a southern city. When it has erected its white tile station with real, red tile roffing, installed pumps and other equipment, put in rest rooms and paid for landscaping it will have an investment of about $75,000 in one station. Probably the most expensive station is that of Atlantic Refining Co. in Providence, built several years ago, which experts figure could not be duplicated today for $75,000.

Standard Oil of Indiana is the greatest exponent of company-owned stations, because at time of dissolution its refineries were protected, through pipe line connection with Mid-Continent fields, or crude oil. Its problem was to develop distribution and it was one of the first to build its own stations. At the beginning of 1923 it owned 1,668 stations, representing an investment of $19,799,000; $7,936,000 was in real estate, improvement and construction and $11,852,000 in land. This year Indiana is spending another $10,000,000 for additional stations.

Average Per Station

Indiana's average cost a station at the end of 1922 was $12,000, much below present day costs, owing to its early start. One of the big eastern marketing companies formerly erected two types, costing $6,500 for a standardized steel station and $12,500 for a white tile station. Both prices were exclusive of real estate costs which varies with location and city. This company is now adopting a new type, brick and concrete with tile roof, which will cost $10,000. Thus, Indiana's cost is about present cost of station alone without real estate.

(Continued on Page 102)

Middle West Jobbers Have First View of Refinery Operations

One of the largest delegations attending the International Petroleum Exposition and Congress last week was that of Cosden & Co. and the Taxman Refining Co. Approximately 175 men were the guests of the two companies during two days of the exposition. The delegation was composed principally of jobbers from the States of the Middle West, who left Chicago in the special train, arriving at Tulsa on Tuesday.

While in Tulsa they were the guests of Cosden & Co. In addition to being given the opportunity to become thoroughly acquainted with the operation of Cosden & Co.'s refinery at West Tulsa—the largest and most complete in the Mid-Continent area—they were shown many other places of interest to the oil fraternity besides those features confined to the exposition. The party ate their meals at the dining hall of the refinery and on Wednesday night before their departure an elaborate banquet was served.

Many of the jobbers connected with some of the largest independent firms of the Middle West, stated that it was the first opportunity they ever had to become acquainted with refinery operation and also to secure a general conception of the oil industry made possible through the varied exhibits of the exposition. Practically all of the officials of Cosden & Co. and the Taxman Refining Co. either accompanied the party on the train or were at Tulsa when it arrived.

List of Visitors

The following were members of the party:

John Abshire, Goshen, Ind.; Thos. B. Bennett, Muskegon, Mich.; Wm. Abshire, Goshen, Ind.; John W. Burke, Logansport, Ind.; R. E. Anderson, Rochelle, Ill.; C. W. Pain, Paxton, Ill.; F. L. Anderson, Bary, Ind.; A. J. Callaghan, Jackson, Mich.; W. E. Anderson, Winona, Minn.; J. M. Carson, Chicago, Ill.; A. W. Aronson, Twining, Mich.; Sheldon Clark, Chicago, Ill.; W. H. Barber, Minneapolis, Minn.; O. A. Tesbroek, Waukesha, Wis.; G. A. Steele, Omaha, Neb.; J. J. Thiesen, St. Joseph, Mich.; Thomas Stephens, Detroit, Mich.; Mr. Thompson, Minneapolis, Minn.; Henry Stelk, Indianapolis, Ind.; W. H. Vahey, Youngstown, Ohio; Henry Stoltz, Milwaukee, Wis.; Ben Vandenberg, Holland, Mich.; Mr. Swaggerman, Hudson.

(Continued on Page 102)

SEEKS RECEIVER FOR INDIAHOMA REF. CO.

ST. LOUIS, Mo., Oct. 13.—The estate of Gustav Wamsganz, stockholder in the Indianahoma Refining Co., has filed suit in federal court asking the appointment of an ancilliary receiver to take charge of the local assets of the company. The petition alleges gross mismanagement.

According to the petition the company has borrowed $347,550 given a lien on refined and crude oil in storage and in transit as security and has pledged tank car equipment as security for trust notes on which a balance of 267,828 is due. The petition asserts the company had additional liabilities of approximately $1,000,000. Assets of $9,717,304 are carried on the books of the company but the petition alleges the actual value of these assets is less than $1,000,000.

MILLION FOR FILLING STATIONS

BOSTON, Mass., Oct. 15.—Colonial Filling Stations, Inc., controlled by the Beacon Oil Co., has sold $1,000,000 real estate mortgage 10-year sinking fund 6½ per cent bonds to Kidder, Peabody & Co. Proceeds will be used for extension of a chain of gasoline filling stations in Metropolitan Boston.

JOBBERS OF MIDDLE WESTERN STATES WHO WERE GUESTS OF COSDEN & CO. IN TULSA

—Hoefler-Shuler Photo Co., Inc.

Ruts to Rails

GATX GENERAL AMERICAN

Oil's entrance to industry in 1859 was humble. The 2,000 barrels that seeped through the ground in a year were carried in iron-bound barrels by creaking ox-teams over wagon trails to the Allegheny River. Collisions and groundings among the oil barges on the river made transportation most uncertain.

But then, oil had no commercial importance. It was only a viscous green-brown liquid used medicinally, and to make crude machinery move a little easier.

Sixty-four years have passed. The ox-teams have melted away in the mists of the past—so, too, have all the slow, spacious, inefficient times they were a part of. The crunch of wheels in the wagon ruts of Pennsylvania has changed to the rhythmic click of wheels on the bright steel trail across the nation. The thin trickle has become a spurting flood of 551,000,000 barrels a year.

Today finds trains of GATX tank cars cutting across the ghosts of ox-team transportation with the sure power of progress itself. Made with all the improvements the new science of transportation can suggest, and all the fine workmanship that characterizes the best of every age, GATX tank cars offer oil, and every other liquid, the greatest advantages for even-temperatured rapid transportation—anywhere.

A leasing fleet of more than 12,000 cars with a skilled traffic department to operate it, and designing, building, rebuilding and repairing departments, make GATX service to shippers complete.

Let a representative call and show you a better way to speed your own wheels.

GENERAL AMERICAN TANK CAR CORPORATION

New York: 17 Battery Place Chicago: 111 West Monroe Street San Francisco: 311 California Street

Cooling Devices and Evaporation Losses

Results of Tests With Water Spray, Water Seal and Non-Cooled Gasoline Tanks Told by Bureau of Mines Expert.

By Ludwig Schmidt
(Assistant Petroleum Engineer, Bureau of Mines)

The consumption of gasoline in the United States varies materially with the seasons during some of the summer months it exceeds the rate of production and in the other seasons the production of gasoline exceeds the consumption. The usual practice of the larger refiners is to store surplus stocks during the winter seasons. During some of the summer mands during the summer months. The following shows the stocks of gasoline at refineries on the last day of April for the past five years: 1919, 593,616,170 gallons; 1920, 643,552,644 gallons; 1921, 747,222,900 gallons; 1922, 892,567,766 gallons, and in 1923, 1,336,417,871 gallons.

Thus each year an enormous supply of gasoline accumulates over the winter months and is subject to losses by evaporation. On the basis of experiments made by the Bureau of Mines, it is estimated that 3 to 4 per cent of the gasoline stocks that accumulate between the end of the summer season and the following spring, is lost by evaporation.

Before discussing methods for preventing evaporation losses of gasoline in storage, it is important to consider the effect of evaporation on the character of the gasoline. Gasoline is usually refined to meet certain specifications. The specification limits vary with the contracts under which the gasoline is sold, but certain specifications are designated by practically all buyers of refined gasoline. These are gravity in degrees A. P. I., initial boiling point, and end point in degrees Fahrenheit. Specifications defining the percentages of gasoline that must distill over between certain temperatures, and distillation curves are also coming into general use. The general effect of evaporation on the character of gasoline is much same for all kinds.

Lowers Initial Boiling Point

Gasoline may be considered as a mixture of the lighter liquid hydrocarbons found in petroleum. The first fractions to evaporate are the most volatile; therefore they have the highest A. P. I. gravity and the lowest boiling point of any fractions of the gasoline. The escape of these light fractions from gasoline in storage results in a large financial loss to oil refiners, not only because of the reduction in volume, but mainly because the characteristics of the gasoline are changed. The greatest change is a raising of the initial boiling point and lowering of the gravity. The loss in gravity is not difficult to remedy. However, the addition of low-boiling constituents to lower the initial boiling point or to meet the requirements of the distillation curve is very costly. The loss by evaporation of a small percentage of a tank of gasoline will usually require a relatively large addition of light products. This is due to the fact that the portion evaporated consists of very low boiling hydrocarbons, while the light gasolines available for blending contain considerable proportions of higher boiling material. Blending is usually done at the time of shipment, and this may entail an additional loss to the refiner as he must often make or buy on the market, low-boiling products at a time when prices are the highest. The aggregate losses to the refiner resulting from evaporation of gasoline in storage, therefore, may be considerable and it is to the refiners' best interests to reduce evaporation losses to a minimum.

The following are the four main factors that govern the rate of evaporation of a liquid: (a) Renewal of air over evaporating surface, (b) Temperature of the surface of the liquid, (c) Area of evaporating surface, and (d) Quantity of vapor in the surrounding atmosphere.

Regulation of any one of the above factors will affect the rate of evaporation. There are several methods now in use for decreasing the rate of evaporation by reducing the area of the evaporating surface, as for example, floating roofs or frothy mixtures to cover the surface of the liquid. These are not discussed here. This report deals with the control of the temperature of the surface of the liquid, and the renewal of air over the evaporating surface.

Renewal of Air

A prime requisite for the reduction of evaporation losses under present storage conditions is vapor-tight tankage. Vapor-tight tankage will practically eliminate the renewal of air over the surface of the liquid in the tank, except as it may be caused by temperature changes and by emptying and filling a tank. A vapor-tight tank prevents free circulation of air over the surface of the liquid.

In order to provide for the necessary release of pressure or vacuum during the filling and emptying of vapor-tight tanks, each tank is equipped with proper pressure and vacuum relief valves. This prevents the tank roof from being ruptured by bulging during filling or pulled in during empty; it also prevents any distortion or rupture to the tank roof due to expansion and contraction of the vapors in the tank caused by variations in atmospheric conditions.

"All steel" tankage such as that used by oil refiners is usually provided with roofs varying in thickness from about 9/64 to 3/16 inch, laid on steel rafters and attached only to the shell of the tank at the top angle or chime. With such construction it is advisable to set the pressure relief valve for a pressure not exceeding 1½ ounces and the vacuum relief valve for not more than one ounce vacuum on the heaviest tanks. It is essential that gages and thief hatches, manholes, and swing line hatches be vapor tight.

Many companies prefer to equip their tanks with breather lines and not use vacuum and pressure relief valves. This is satisfactory as it prevents excess pressure or vacuum on the tank and carries the vapors outside of the fire wall. However, if the tank or breather line is equipped with a pressure and vacuum relief valve, enough pressure may be carried on the tank to enable the gager to detect any leaks in the roof. Also, the valve will prevent diffusion through the breather line and practically prevent breathing caused by the frequent but minor atmospheric changes.

Breathing Losses

With vapor-tight equipment the renewal of air over the liquid surface in a tank is reduced to a minimum. It must be borne in mind that even with vapor-tight tanks and equipment, breathing losses are considerable. For example, if a 55,000-barrel tank which is 30 feet high, is filled to 29 feet with oil, the vapor space between the surface of the oil and the roof is about 34,330 cubic feet. If the temperature increased 40° F., 2,800 cubic feet of gasoline-saturated air would be expelled. If the tank contained only 15 feet of liquid the amount of air and vapor expelled under the same conditions would be 14,500 cubic feet. The amount of saturation of the air with gasoline vapor depends upon the vapor pressure of the liquid at the temperature (surface temperature) of the liquid stored. During the hot summer months the vapor expelled from gasoline storage tanks often contains over 80 per cent gasoline vapors; also during the summer months the maximum and minimum temperature variation of the vapor in the tank is more than 70°F. in 24 hours. From a 55,000-bbl. tank filled to 29 feet, the breathing loss caused by temperature change of 70°F. is 3,700 cubic feet of vapor per gallon, would be 97 gallons.. This does not include the losses from breathing caused by minor temperature changes, barometric changes, wind pressures and other atmospheric changes which at times would double the loss due to one large change in temperature.

Cooling Systems

In addition to vapor-tight tankage, some refiners have installed cooling systems on their gasoline storage tanks for reducing breathing and filling. Others have tried various forms of insulation on tanks or a combination of insulation and cooling, such as a water spray under the insulation on a tank.

The effect of any cooling system on evaporation is twofold; first, it keeps the vapor temperature in the tank more uniform, thus reducing the actual breathing of the tank, and second, it reduces the vapor temperature and the temperature of the surface of the liquid in the tank and thereby reduces the percentage of the gasoline vapor in the air space above the liquid.

When a tank "breathes in" at night, the vapor space above the oil is filled with unsaturated air, (i.e. air containing no gasoline vapor). On coming in contact with the liquid, the air absorbs gasoline vapor; the amount which it will absorb depends on the temperature of the liquid surface, the higher the temperature the higher the percentage of gasoline vapor absorbed. During the day the temperature of the air and vapor increases and the mixture expands. Part of the air and vapor mixture is forced out of the tank through breather lines. If the temperature is high, as on a hot day, the air will contain a high percentage of gasoline vapor. As previously mentioned, observations on tanks during the summer have shown that vapor expelled from the tanks contained over 80 per cent gasoline vapor. By means of cooling systems this percentage may be greatly reduced.

Cooling and Non-Cooling Systems

In order to compare the efficiency of the two water-cooling systems now in use in preventing evaporation losses, a test was made in which observations were taken on three 250-barrel vapor-tight tanks filled with gasoline of 59.5° gravity (A. P.I.) One tank was equipped with a water spray and one with a water-seal roof. The third tank had no cooling system of any kind. As these tanks were erected especially for this test, great care was taken in making them vapor tight. They were of the latest type of bolted construction, with the roofs tied to the rafters to prevent any flapping motion when the tank breathes.

Temperatures of Gasoline in Water-Spray, Water-Seal and Non-Cooled Tanks

Date—	Tank No. 1— Surface temperature of gasoline	Tank No. 1— Average temperature of gasoline	Tank No. 2— Surface temperature of gasoline	Tank No. 2— Average temperature of gasoline	Tank No. 3— Surface temperature of gasoline	Tank No. 3— Average temperature of gasoline
May 10, 1923	70°F.	62°F.	71°F.	68°F.	82°F.	67°F.
June 11, 1923	81	75	84	80	92	83
July 17, 1923	89	83	96	90	108	98
Average	80	74	83	79	94	80

After the tanks were filled, the filling lines were disconnected at the valves and the open ends stopped with plugs in order to eliminate any chance of leakage. The pressure and vacuum relief valves on all three tanks were set at about two ounces.

Each tank was equipped with two gage hatches located on opposite sides of the tank. Great care was taken in gaging the test tank. Two gages were taken at each hatch, one an "outage" gage (with a hook gage and one an "ullage" gage using a regulation steel tape with a seven-inch plumb bob. At the time of gaging the temperature of the oil was determined using a thief thermometer. Temperatures were taken of the gasoline six inches below the surface, the middle of the tank, and six inches from the bottom of the tank. Average samples of the gasoline were taken each time the tank was gaged.

No attempt was made to divide this test into any predetermined parts, observations being made so that the rate of evaporation of the gasoline could be determined for average spring and summer conditions.

Following table gives the results of first test:

Results of Evaporation Tests on Gasoline in Water Spray, Water Seal and Non-Cooled Tank

	Tank No. 1 (Spray)	Tank No. 2 (Water Seal)	Tank No. 3 (No cooling sys.)
Loss April 24-June 6, bbls.	0.45	0.63	1.54
Loss June 6-July 17, bbls.	1.08	1.48	2.99
Total loss, bbls.	1.53	2.11	3.63
Total loss in per cent (85 days)	0.65	0.9	1.54
Total gravity loss in degrees A. P. I.	0.2	0.3	0.4

The actual value of the volume of gasoline lost is considerable, but is relatively small in comparison to the cost of reblending the product to make it meet its original specifications. The following table gives the changes in distillation record of the gasoline in each tank:

Distillation Records of Gasoline in Water Spray, Water Seal and Non-Cooled Tanks

Beginning of Test Gasoline same all tanks	End of Test— Tank No. 1 (Spray)	Tank No. 2 (Water Seal)	Tank No. 3 (No cooling sys.)
First drop	112°F.	126°F.	129°F.
10%	170	180	181
20%	200	205	205
30%	222	226	228
40%	244	248	252
50%	264	268	270
60%	290	289	291
70%	314	320	324
80%	348	356	356
90%	390	399	403
End point	435	442	443
Recovery, pct	97	97.6	97.7
Total rise in initial boiling point	14°F.	17°F.	21°F.
Total rise in end point	7°F.	8°F.	7°F.

The above results indicate that a water-spray system is somewhat better than a water-seal roof for reducing evaporation. This is due to the cooling effect caused by the evaporation of the thin film of water on the roof of the tank as well as the cooling of the sides of the tank by the spray. A properly installed spray will cool both the roof and the sides of a tank. The actual cooling effect of the water is shown by the temperature records given in the following table:

The price of gasoline doesn't look nearly as small and contemptible to the refiners who now produce it from their fuel oil with the Dubbs Cracking Process, as it does to those who are depending for their supply on skimming it from the crude

Every gallon of gasoline made by cracking fuel oil with the Dubbs Process, not only pays its own "board and keep" but is helping to support a good share of the rest of the sick family of products, and will see them through to full recovery

Universal Oil Products Company
Owners of the Dubbs Process
208 South La Salle Street Chicago

From the above it will be noted that the average surface temperature of the liquid in the spray-cooled tank is 14°F. below that in the non-cooled tank and 3°F. below that in the tank with the water-seal roof. However, there was an unusual amount of rainfall during the months of May and June. The effect was to lower the difference in the average temperature and thus reduce the advantage of the spray tank. Temperatures were taken July 17, after some 20 days of average summer weather. The average temperature of the liquid in the water-spray tank was 19°F. below the temperature in the non-cooled tank and 7°F. below the water-seal roof.

Recording thermometers placed in the vapor space gave the daily atmospheric variation in temperature of the vapor above the gasoline.

Table 4 gives the condensed records of these temperatures during three two-week periods of the test.

Vapor Temperatures in Water-Spray, Water-Seal and Non-Cooled Tanks

Temperatures from April 24 to May 8, 1923 (Spring Temperatures)

	Tank No. 1 (Water Spray)	Tank No. 2 (Water Seal)	Tank No. 3 (No cooling sys.)
Average high	79°F.	79°F.	94°F.
Average low	56	62	59
Average vapor tem	68½	70½	76½
Av. daily variation	23	17	35

Temperatures of Vapors from June 27 to July 4 (Rainy Period)

Average high	99	89	113
Average low	64	78	68
Average vapor tem	76	83	90
Av. daily variation	25	11	45

Temperatures of Vapors from July 6 to July 14 (Summer Temperatures)

Average high	94	98	125
Average low	77	89	79
Averave vapor tem	82	93	102
Av. daily variation	17	9	46

Vapor Temperatures

Throughout the test the average daily variation of temperature of vapor in the water-seal tank was much less than that of the other two tanks. The average temperature of the vapor in the water-spray tank, however, was considerably lower than in either the water-seal or non-cooled tank. The ratios of daily average variations and average vapor temperatures between the three tanks varied materially. There were constant showers during the months of May and June. The rains had a tendency to place all three tanks under the same conditions, that is, a water spray. For example, the average daily variation in temperature between the water-seal tank and the water-spray tank was 6, 14 and 8 degrees during the three periods specified in Table 4. The water-seal tank was more effective in comparison with the spray tank during the rainy season than during the other periods. The reason for this was that the water-seal tank had in reality, a combination water-seal and spray-cooling system a great part of the time.

Conclusions

The question of water cooling is primarily a question of cost. In this test the water-spray tank used an average of 1,200 gallons per 24 hours. However, the same amount of water would maintain a water spray over a tank of twice the diameter of the 250-barrel tank tested, for the spray used was an ordinary garden sprinkler with the arms so adjusted as to cover the tank roof. The minimum amount of water was used to keep the arms revolving. Thus the availability and cost of water in a given locality would determine the feasibility of using a water-spray cooling system. The results given in Table 1 show that while the losses by evaporation from a vapor-tight tank are small, a water-cooling system used in the hot summer months will cut the rate of evaporation from a vapor-tight tank in half.

A test was made at Ponca City, Okla., to determine the relative evaporation loss of gasoline from a water-seal tank and an ordinary "all steel" tank with an umbrella roof.

Tank No. 1 was a riveted steel tank of 560 barrels capacity. It was 20 feet in diameter and 10 feet high, had a water-seal roof equipped with water-seal thief hatch and gage hole, and a three-inch valve for relieving pressure and vacuum.

Tank No. 2 was a riveted steel tank of 560 barrels capacity. It was 20 feet in diameter and 10 feet high and had an umbrella roof, equipped with an ordinary box swing-line hatch which also served as gage and thief hole. The hatch cover was not tight in, fact throughout the whole test it was open about 1 inch due to the swing-line chain that ran between the box and cover in order to fasten outside the tank. The tank was not vapor tight. There were pin-hole leaks around the top angle and a rip in one of the seams on the roof.

Both tanks were painted white with the exception of the bottom rings, which were black. The test was divided into two periods of 10 days each and the results obtained are given in the following table:

	Tank No. 1 (Water seal roof)	Tank No. 2 (Ordinary umb. roof)
June 10:		
Initial gage net, bbls.	440.27	437.99
Gravity A.P.I., gasoline	58.2	59.1
Temperature of oil, °F.	93	93
June 20:		
Gage net	438.56	434.57
Gravity A.P.I., gasoline	58.15	58.9
Loss in grav. of gaso.	.05	.2
Loss, bbls. 1st 10 days	1.71	3.42
Av. temp. of oil, °F..	89	91
July 1:		
Gage net	438.38	432.7
Gravity A.P.I., gasoline	58.05	58.8
Loss in grav. 2nd per.	.05	.1
Loss in bbls. 2nd per.	.18	2.67
Av. temp. of gaso., °F.	87	89
Total loss, 20 days in gravity	.16	.3
Total loss, 20 days in barrels	1.89	5.29

It will be noted that during the first 10 days the water-seal tank lost 1.71 barrels and during the second 10-day period it lost only 0.18 barrels. The tanks tested had been in "run down" service at the refinery and were temporarily disconnected for the test. A valve on a run-down line had been left open unintentionally and allowed the vapors from the tank to escape through the run-down line. The open valve was discovered at the end of the first period and closed. The smaller loss during the second 10-day period showed that unless a tank is vapor tight, considerable loss will occur even when a cooling system is employed.

Comparison of Tests 1 and 2

In reviewing the results of tests 1 and 2 it will be noted that the loss on the non-cooled vapor-tight tank used in test 1 was only 1.54 per cent in 84 days as compared to a loss of 1.21 per cent in 20 days from the non-cooled, non-vapor tight tank used in test 2. These tests confirm results of other tests which show that the first essential in reducing evaporation losses is the making of tanks vapor-tight. They also indicate that vapor-tight cooling systems are not warranted unless tanks are vapor tight.

In comparing the two tests the quality of the gasoline used must be taken into consideration. The following distillation record shows that the gasoline used in the non-cooled tank in test 1 was somewhat more volatile than that used in test 2. This also bears out the conclusion that vapor-tight tanks should be used as the tendency for the gasoline to evaporate from the vapor-tight tank in test 1 was greater than in test 2.

Distillation Record of Gasoline Used in Tests 1 and 2

	Test No. 1	Test No. 2
Gravity A.P.I.	59 5	58.2
I. P.	112	137
10%	170	202
20%	200	223
30%	222	236
40%	244	252
50%	264	264
60%	290	280
70%	314	302
80%	348	330
90%	390	375
95%	...	404
E. P.	435	444

Value of Insulation

Different types of insulation have been used on tanks with varying degrees of success. It is doubtful whether insulation alone can be depended upon to reduce temperatures and temperature ranges saisfactorily during the hot summer season in the Mid-Continent fields. The effect of insulation is similar to that of water-cooling systems in that it reduces breathing losses by reducing temperature variation and keeping the surface temperature of the oil as low as possible.

If a tank is plastered over with some insulating materials, for example, asbestos, the tank will act as a thermos bottle. If the liquid being stored in the tank is pumped from exposed tanks in which it may have acquired a high temperature, the insulated tank will tend to keep the liquid at a high temperature. The actual temperature variations in the vapor space may be reduced but not entirely prevented by insulation. Also a tank is subject to breathing due to other atmospheric conditions. If the gasoline is stored in the tank at a high temperature the evaporation losses would be reduced a small amount only.

Many tanks are so insulated that there is an air space between the shell of the tank and the insulating material. By means of dampers, cold air may be allowed to flow around the shell of the tank at night in order to cool the liquid and vapor. During the day these dampers may be closed; the insulation keeping out the heat. Such an insulation would be of no value if the insulated tank was not vapor tight, for the draft of air would accelerate the rate of evaporation of the liquid by increasing the rate of renewal of air over the liquid surface.

Some companies insulate the roof and part of the top ring of tanks. If the insulation is properly applied it makes the tank roof vapor-tight and also serves to reduce the temperature of the surface of the liquid and the vapor. During the night the whole tank is subject to cooling by the air, whereas during the day the liquid surface and vapor space is shielded from the direct rays of the sun by the insulation on the roof. At no time during the day would over one-half of the shell of the tank be subject to the direct rays of the sun. It is doubtful if this kind of insulation would be very effective for a working tank or one only partly filled with gasoline.

One of the most satisfactory types of insulation used at the present time is corrugated asbestos sheeting attached to a steel framework, making, a complete housing of asbestos over the entire tank. Considerable space exists between the tank shell and insulation. The housing is open around the bottom and at the top there is a four-foot ventilator for controlling air currents. During the summer months water sprays are placed on the tank under the housing. The air currents ascending from bottom to top cause rapid evaporation of the water film, thus giving an effective cooling action on the tank. The housing also prevents the wind from blowing the spray off the tank. As the tanks thus equipped were in constant service it was not possible to obtain actual evaporation data. As a substitute, recording thermometers were installed in one insulated tank and in one ordinary tank with a water spray, so as to compare the temperatures and temperature ranges of the vapor space in the two tanks. Condensed temperature for June, July, August and September are shown below:

Vapor Temperatures of Tanks Equipped With Water Spray, and Combination Water Spray and Insulation

	June 1 Water Spray Insulated	June 2 Water Spray	July 1 Water Spray Insulated	July 2 Water Spray	Aug. 1 Water Spray Insulated	Aug. 2 Water Spray	Sept. 1 Water Spray Insulated	Sept. 2 Water Spray
Average daily high	90.6	116.5	85.3	110	87.6	111.2	84.4	101
Average daily low.....	71.3	69.5	70.4	71.2	68.9	72.4	61.6	61
Daverage daily variation	19 3	47	14.9	38.8	18.7	38.8	22.8	40
Maximum temperature...	97	135	98	134	99	135	101	130
Minimum temperature....	69	66	64	60	69	64	46	47

Tank No. 2 was equipped with a water spray. The spray, however, did not function effectively as it was a single spray on the top of a 66,000-barrel tank. A slight wind would blow the spray so that only part of the tank was covered with water. This accounts for the very irregular temperature curve for tank No. 2, shown in Figure 4. On Figure 4 it will be noticed that on one or two days the vapor temperature for tank No. 1 exceeded 95°F. This was due to the water spray being shut off.

In conclusion attention is called to certain important points in connection with cooling systems for preventing evaporation losses of gasoline in storage.

Cooling systems installed on tanks other than vapor-tight tanks are not effective and are believed to be a waste of money.

Water-seal roofs by nature of their construction insure a vapor-tight roof. The temperature of the vapors within the tank, however, can not be less than the actual temperature of the water circulated over the roof.

Water sprays require a large amount of water but they have a maximum cooling effect. The sides or shell of the tank is also cooled by a water spray. In order to obtain the maximum effectiveness, water sprays should be so placed that wind and air currents will not carry the water from the tank roof, thus wetting one part of the roof only.

Installation for tanks is generally a permanent fixture. The initial cost may be rather high but the operating cost is negligible. If tanks are insulated without an air space, gasoline to be stored in them should be pumped in at the lowest temperature practicable.

It is believed that types of insulation with an air space between the insulation and the tank are in general more satisfactory, for gasoline may be cooled in such a tank even though it be pumped in at a relatively high temperature.

FUEL OIL USE GROWS IN NORTHERN CITIES

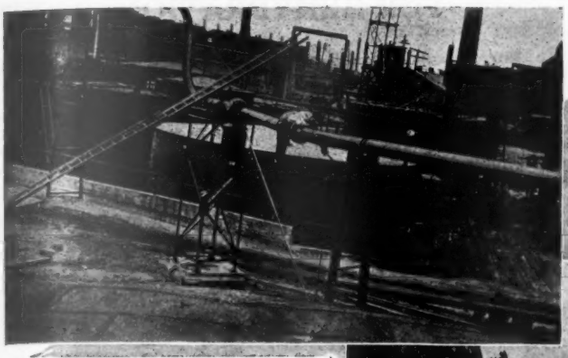
OKLAHOMA CITY, Okla., Oct. 15.—The Santa Fe Railway Co.'s oil division, which operates a refinery at Ardmore and pipe lines in the Healdton and Hewitt fields, is reported to have issued orders to the sales department that no more fuel oil is to be sold. The report is significant in view of the prediction of refiners and marketers that the fuel oil supply will soon be short and the price unusually high. One Oklahoma City marketer says the use of fuel oil and distillate has increased at an amazing rate in Northern cities during the last 12 months.

"If you attend a club meeting in any Northern city these days," says Fred Ptak, formerly assistant general manager of the Hamon interests at Ardmore, "you probably cannot get away until, being from an oil producing State, you have told all you know about oil as a fuel, including its production, manufacture and methods of use. I was told recently in Kansas City that in over half the residences of that city distillate is being used instead of coal."

NEW W. P. R. A. DIRECTORS

Two new members were added to the board of directors of the Western Petroleum Refiners Association at a meeting of the association held last week at the association's new headquarters, in the Cosden building, Tulsa. F. H. Wickett, vice president of the Sapulpa Refining Co., Tulsa, and A. L. Derby, president of the Derby Oil & Refining Co., Wichita, Kan., are the new members. D. R. Buchanan, vice president of the Chestnut & Smith Corp., Tulsa, and president of the Association of Natural Gasoline Manufacturers, was elected a member of the executive committee of the association.

Outside of these three appointments there were no important matters taken up at the meeting. Another meeting of the board of directors will probably be held the first week in November.



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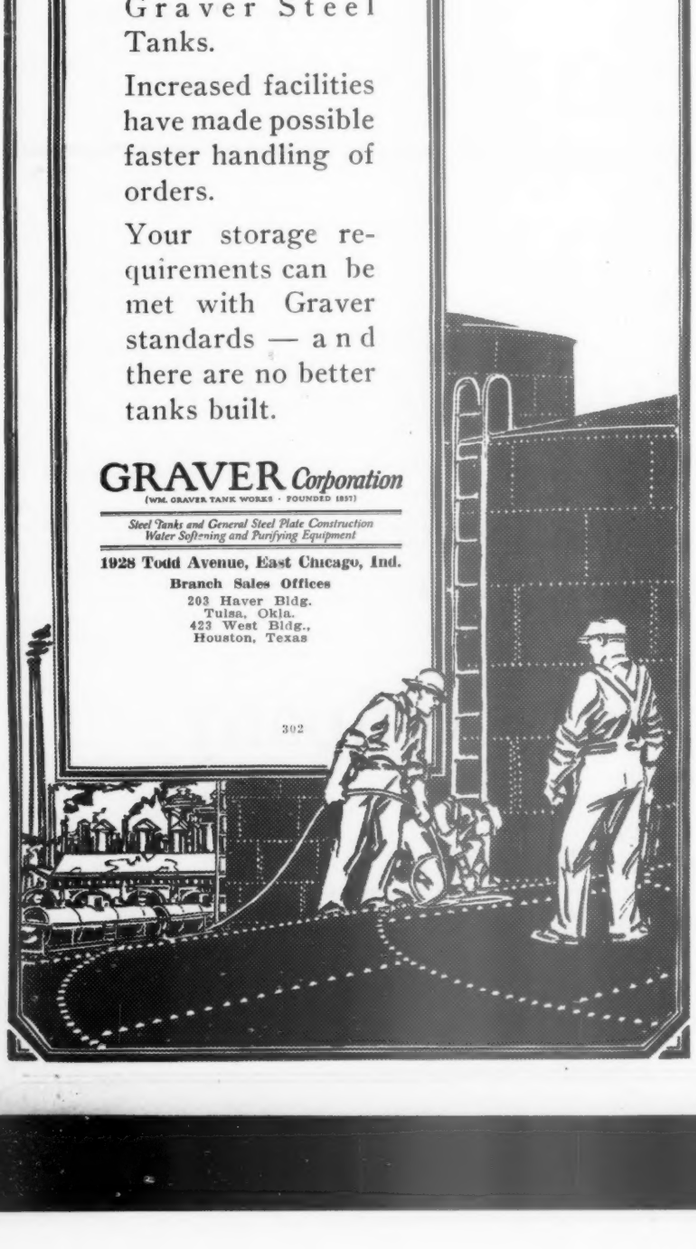

DESCRIBES ELECTRICAL PROCESS FOR DEHYDRATION OF CUT OIL

"The Electrical Dehydration of Cut Oil" was detailed by F. D. Mahone, of the Petroleum Rectifying Co. of California, before the meeting of the Institute of Petroleum Technologists held in Tulsa in connection with the International Petroleum Exposition and Congress.

The Institute of Petroleum Technologists is a part of the American Institute of Mining and Metallurgical Engineers, specializing in petroleum.

Crude oil as produced from the well, Mr. Mahone said, may carry with it varying amounts of water, which may be present in two states, free, in sufficiently large globules to settle out in time if the fluid is allowed to stand or as an emulsion formed by myriad minute water particles surrounded and entrapped by a film of oil through which it cannot break by gravity alone. When such an emulsion is subjected to the influence of a high potential alternating field the water particles rupture the enveloping oil films and coalesce into larger water droplets, and this procedure continues until the entire water content is freed into drops of such size that they readily settle out. This is accomplished in a few seconds.

The action is that of a multitude of electrical condensers in series, rather than that of a number of conducting paths. The minute water particles serve as the metallic elements or plates of the condensers and the separating oil acts as the dielectric. Such surface charges as the particles may have removed, and the intervening oil, is broken, probably electrically, by the voltage and mechanically by the attractive force between adjacent oppositely electrified particles.

Principles Explained

This principle of breaking up an emulsion under the influence of an alternating electric field was discovered by Dr. F. S. Cottrell and a plant was installed in 1909 in the Coalinga Field in California, which was able to reduce 14 per cent emulsion to less than 2 per cent commercial losses, Mr. Mahone declared.

The Cottrell apparatus, he said, consists essentially of the electric treater and a settling or trap tank. The treater is about 3 feet in diameter and 10 feet high, made of galvanized iron, this tank shell constituting the grounded electrode. The other, or live, electrode consists of a number of circular discs mounted on a vertical shaft concentric with the treater shell and slowly revolved by gearing from a small motor. This live electrode carries a voltage of approximately 11,000 and is properly insulated from the gearing and the rest of the treater. It is charged from one side of a high potential transformer, the other side being grounded, the primary of which is excited from a commercial 220-volt alternating circuit through a suitable switchboard and regulating coil. Within the treater is a steam coil for controlling the temperature of the emulsion undergoing treatment. The cut oil enters the treater continuously and is made to flow through the electric field formed at the annular space between the edges of the discs and the treater shell, where it is broken up and the oil and water, now in a free state, pass to the trap tank. Here the water, with foreign matter and the salts held in solution, is continuously drawn off from the bottom while the cleaned oil, taken out at the top through an adjustable swing pipe, flows continuously to the shipping tanks. The capacity per treater, depending on the character of the emulsion and other conditions, ranges from 200 to 1,000 bbls. of pipe line oil per day. The power consumption is between 25 and 75-watt hours per barrel of cleaned oil, cost of electricity at the rate of 1.5 cents per kilowatt hour averaging 1 cent for 10 to 25 bbls.

The total cost, Mr. Mahone said, including steam, electricity, royalty, labor, repairs, interest and depreciation has been found to be from three-quarters of a cent to 3 cents per bbl. of net oil. This type of dehydrator, which he said was in general use in California, had recovered in 1922 over 15,000,000 bbls. of pipe line oil from cut crude containing from 5 to 75 per cent emulsion and averaging from 30 to 35 per cent. The gravity ranged from 11 degrees to 35 degrees Baume.

Treater Described

Mr. Mahone then described the National treater used in the Gulf Coast fields. In this no trap tank is required, as the treater, 8 feet in diameter and 15 feet high, provides sufficient settling space for the treatment of Gulf Coast emulsions. Preheating by means of heat exchangers or otherwise is generally employed because of the relatively large throughput. The treater, however, is provided with a welded-in steam coil for temperature regulation and use in starting up. The speaker described the electric field as a number of flat sheet-iron plates, alternating live and grounded, suspended vertically in the upper portion of the treater. The live plates are charged to 11,000 volts of alternating current. The cut oil passes in near the bottom, ascends through warm water into the electric field and is there resolved into clean oil and free water, the oil flowing from the top of the treater to the shipping tanks and the water being bled from the bottom through a gooseneck which insures that the treater always be full. The treater tank is built of riveted boiler iron. It is entirely enclosed and the system from supply pump to shipping tanks is vapor tight. One unit of this type of plant can turn out from 500 to 3,000 bbls. of pipe line oil per day, Mr. Mahone said, and the cost is about the same as in the Cottrell system.

In a new design of treater described by the speaker and known as the HF treater, the cut oil to be treated enters the electric field immediately upon coming into the treater. Should there be any incomplete treatment, the switchboard volmeter registers early evidence of it, thereby minimizing the chance of sending partially cleaned oil to the shipping tanks. The direction of flow through the field is almost horizontal and when the water settles it takes the shortest path out of the remainder of the fluid and out of the field. This design of treater has been found very successful in California and in the Texas fields, the speaker said.

Effects of Heating

Mr. Mahone said that in a few instances with the electrical process no heating is required, the cut oil entering the treater as it comes from the well. Usually, however, some heat is supplied. The effects of heating are to lower the viscosity and it increases the difference between the specific gravity of the oil and of the water. Some very viscous California emulsions must be heated to 180 degrees F. to secure a proper relation between fuel and throughput, while lighter oils treat satisfactorily at 120 degrees or less. The average treater temperature of plants in California is 135 degrees.

Unless sand mud or other solid matter is supplied to the treater there is no need of cleaning it out, he said, but cleaning out consists only of opening a manhole and flushing out with a hose. Water-soluble salts pass out in the water and nothing is added to the oil for the refinery to contend with. The power is supplied by electricity but the separation is purely mechanical, and retreatment has never been found necessary, the first run giving oil-free water and to the pipe line, water-free oil. There is no limitation to the electrical process Mr. Mahone concluded. It handles, though not with equal ease, all types of oil field emulsions, of all percentages, viscosities and gravities.

CHICAGO MARKET QUIET, PRICES FLAT

"Bootlegging" in Cities Continues. Country Cuts Seem Psychological. Kerosene Fairly Firm. Fuel Oil Dull and Lower, With Gas Oil Following. Lubricants Active. Tank Wagon Fluctuations

By J. B. Waldo

CHICAGO, Oct. 15.—There is a lot of price cutting of a certain kind going on in this city but it is not among the recognized distributors but rather by concerns that are taking advantage of local conditions to slip in and get a little business as they can. The system is not new. It was rampant in Minneapolis a short time ago when a large distributor was accused, with evidence that amounted to conviction, of supplying gasoline peddlers with supplies at a price that enabled them to go out and cut the price to the larger consumers. Someone would get a tank wagon either by purchase or renting, and then buy a load of gasoline and peddle it to purchasers who would take a sufficient quantity to make it worth while. There may be some supplying by large jobbers of these men here but the bulk of the business is worked a little differently in Chicago.

In this city the "bootlegger" arranges for tankage with some company that has more tanks than gasoline and then makes a proposition to the customer that he will sell him gasoline in car lots and deliver in tank lots as wanted at a price that is usually 1 cent below the tank wagon price. In some cases the price offered is 3 cents more than the cost of the gasoline, freight paid to Chicago. The 3 cents is to pay for storage and delivery. With gasoline to be had at least in small lots at 6½ cents this gives them a working margin and there are enough in the business to make it unpleasant for the companies who stick to the price list. The customers of the bootleggers are the garages and larger consumers, like the truck companies, who can take a tank wagon load at one delivery. It is probable the regular companies in some cases at least are meeting this competition and reports are current that certain organizations have made reductions in price to larger users but they deny it and would not want it to be known as establishing a precedent.

Country Cuts Mystery

The question as to the cutting of prices by the country jobbers is as much of a mystery to the people who sell them as ever. No two have the same explanation. One says it is simply hysteria of an aggravated form. Others that certain organizations are doing it now for the advertising that it brings them and they figure the loss of profit as offset by the additional publicity they gain. There is no doubt the consumption of gasoline is showing a seasonable decrease and that distributors are feeling the result of the smaller purchases by motorists. Probably some of the oil companies overbought at the time of the 6.6 cents reduction in tank wagon prices through the territory and are trying to reduce their stocks on hand. The larger distributors admit the gallonage is shrinking with the season but claim they are selling more than they did a year ago. With the increased number of automobiles in use, it would be strange if the consumption of gasoline was not larger. The report on September sales is that they were somewhat ahead of last year on gasoline but that kerosene is showing a decided decline in jobber's and they are rather puzzled to account for it. As the tractor trade is a large factor in the kerosene business the distributors in some instances blame the lack of consumption on the early harvest.

The Chicago market has been quiet this week and prices have been rather flat. Generally, the market has lacked the animation that existed during the latter part of September and the early days of October. One large refiner stated their business during the last 10 days of September was very large and that they had so many orders to enter for gasoline they had little time for anything else but that this past week they had little to do. Others report the market dull. Prices show a considerable range. The favored price is 6¾ cents but gasoline can be had in quantities at 6½ cents and some cars were moved at 6¼ cents. Other refiners are holding for 7 cents. One refinery wired its local agent that recent business had put them in shape to wait a little and to take no more orders at less than 7 cents.

Right now purchasers of gasoline have supplied their wants for a time either through contracts for a year or part of a year or for a shorter period or have placed spot orders which when delivered relieve them of the necessity of adding to their supplies in the near future. There has been little change in the character of the demand which is possibly 90 per cent for the New Navy grade. There is no demand for a lower gravity and while some jobbers use more or less of the higher gravities either in straight runs or blends the volume is small compared with the New Navy requirements. Natural gasoline is still scarce and firm.

Kerosene Firm

The demand for kerosene is still quite good but some concerns have better reports to make of business than others. The prices paid range from 4 to 4¼ cents with little difference as to whether the gravity is 41 or 42 degrees. One concern had to go into the market for 100 cars and bought at 4 to 4¼ cents. Others bought a small amount at a shade under 4 cents but the latter was for immediate shipment. Supplies seem light in the Kansas-Oklahoma territory but supplies are more freely offered from the North Texas group of refineries.

The demand for distillate for heating purposes is very good and prices are higher. This is largely due to the laying in of supplies for the early winter by both the distributor and the consumer. Chicago is well supplied with makers of oil burners and they are being installed on all sides, particularly in the residential suburbs. Users of the oil burner for heating their homes state that in weather such as prevails now when heat is needed only nights and mornings, the oil burner, which can be lighted and stopped with a turn of the wrist, is much more economical than the coal burner, which has to be kept going night and day to have heat the few hours it is really needed.

Fuel Oil Dull and Lower

Marketers of refinery fuel oil state they are not doing the business they expected to do and seem in some cases to be unable to account for the lack of demand. One, with the product of a large refinery to dispose of, says there are two chief reasons. The first is that the large manufacturing companies that use fuel oil have not been as busy as they hoped to be and are holding back on making purchases. The second reason is the immense quantity of treated crude from Smackover and adjacent fields that is being sold to the large consumers who are using, he states, of his own knowledge thousands and even millions of barrels as a whole. He is probably right. In one case a bid was made on a considerable contract. The bidder who had

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had the business for some time expected to secure a repeat as the buyer was friendly to the refinery and liked the product. The bid was for 80 cents. Calling up to know if he should come over and close up the contract he was told the buyer was sorry but that he had a bid from a good concern at 77½ cents and could do nothing but accept it. This shows where the fuel oil market is today with sales at anywhere from 77½ to 85 cents and the latter as high as anyone needs to pay for refinery fuel oil. Smackover fuel oil is selling to large users at 62½ to 65 cents with some paying a little more.

Gas oil continues dull and prices follow the quotations on fuel oil closely. The demand is irregular but always small, as the utility companies are buying from hand to mouth and their purchases are less than they were. Distributors who have been looking for an increased demand begin to say they see no improvement and do not know what to expect. They do say that supplies are limited compared with what used to be considered a fair demand. Prices are a little better than 2¼ cents in this market with that price as the bottom.

There is a good demand for straw distillate as that is one of the fuels used in the oil burners and the price ranges from 3 to 3½ cents according to quality and conditions of the sale.

Lubricating Oils Active

The demand for all lubricating oils is good with neutrals of 200, 250 and 300 viscosity and bright stocks in the lead as has been the case for several months. Steam cylinder stocks are selling well and many are still behind on orders. Compounders are busy and state the demand for motor lubricants is still large and has shown little decline with the ending of the touring season. The industrial demand is growing but the full requirements of the manufacturing plants have not been reached yet.

Tank Wagon Changes

Beyond the decline in the tank wagon price of kerosene which went into effect on October 4, there has been no general change in this territory. The cutting of gasoline prices at smaller points continues and on Friday the Standard stated it had authorized reductions on gasoline at four small points in Kansas, a further decline of one-tenth cent at Beloit and a cut of seven-tenths cent on kerosene at Fairview, Mo. It is almost impossible to keep track of the quotations at these small points but it is only as a rule at the small points the declines are made. One local refining and distributing organization stated that at 72 points in Indiana and Illinois where it had competing stations with the Standard Oil Co. of Indiana there had been no trouble about cuts in prices. At Detroit it was stated a further reduction of 2 cents a gallon had been made by a small distributor but that no attention had been paid to it yet, and probably none would be paid unless others followed the decline. The reductions announced on Friday were as follows: Beloit, Wis., one-tenth cent on gasoline to 10¼ cents tank wagon; Goddard, Kans., 1.1 cent to 14.8; Liberal, Kans., to 14.2; Mulvane, Kans., 1.1 cent to 12.8; Colwich, Kans., 1 cent to 14, all being on gasoline, tank wagon prices. The tank wagon at Fairview, Mo., was reduced 1 cent to 10 cents. This is merely an example of the daily doings in the territory.

MIDDLE WEST JOBBERS VIEW REFINERY WORK

(Continued from Page 94)

ville, Mich.; Wm. C. Vanderberg, Holland, Mich.; A. G. Tamlin, Laporte, Ind.; C. O. Van Thurn, Tulsa, Okla.; Milo Taxman, Kansas City, Mo.; W. E. Wall, Cleveland, Ohio; Mike Taxman, Kansas City, Mo.; Otto Wendt, Wyandotte, Mich.; J. J. Taxman, Kansas City, Mo.; C. J. Westlund, Muskegon, Mich.; H. C. Meier, Council Bluffs, Iowa; W. J. Osborne, Rockford, Ill.; Amos Messner, Benton Harbor, Mich.; James Patten, Fort Wayne, Ind.; Morris Milder, Omaha, Neb.; Lyle Patterson, St. Paul, Minn.; Harry Milton, Sedalia, Mo.; R. C. Philips, Dowagiac, Mich.; M. M. Nelson, St. Joseph, Mo.; Henry Plane, Chicago, Ill.; Newlin, Philadelphia, Pa.; J. J. Pollard, Sioux City, Iowa; Arthur W. Newton, Chicago, Ill.; C. E. Pontious, Hoopeston, Ill.; Tom O,Dea, Fort Wayne, Ind.; Harry Potter, Madison, Wis.; Jacob Olree, Grand Rapids, Mich.; M. F. Powers, Saugatuck, Mich.; Chas. J. Raths, Detroit, Mich.; Carl Shapiro, Virginia, Minn.; W. P. Raths, Detroit, Mich.; Guy Smith, Rockford, Ill.; Bert Rentmeisster, Oconomowoc, Wis.; Omer Smith, Rockford, Ill.; Abe Resnick, Fort Madison, Iowa; G. Smith, Rockford Ill.; A. Rickse, Kalamazoo, Mich.; A. A. Smith, Kansas City, Mo.; A. J. Rollins, Green Bay, Wis.; Frank Smith, Pawpaw, Mich.; Mr. Ruff, Peoria, Ill.; Ray Spicer, Paris, Ill.; Mr. Royfe, Kalamazoo, Mich.; E. W. Stabler, Ann Arbor, Mich.; George J. Schindehette, Saginaw, Mich.; Fred Staebler, Ann Arbor, Mich.; A. G. Senn, Chicago Heights, Ill.; R. B. White, Chicago, Ill.; W. S. White, Chicago, Ill.; W. G. Willard, Chicago, Ill.; George B. Williams, Chicago, Ill.; J. E. Williams, Kansas City, Mo.; H. M. Wilson, Minot, N. D.; J. S. Winters, Kansas City, Mo.; Archie Wood, Bay City, Mich.; E. A. Woods, Youngstown, Ohio; W. D. Zimmerman, Goshen, Ind.; George Bodie, Chicago, Ill.; Paul Deer, Crawfordsville, Ind.; Fred Borders, Winamac, Ind.; A. C. Bruech, Madison, Wis.; W. R. Dorgan, Grand Rapids, Mich.; A. F. Bensinger, Chicago, Ill.; A. D. Dubbuson, South Haven, Mich.; Roy F. Clemens, St. Joseph, Mo.; J. J. Dowling, Kansas City, Mo.; J. J. Collins, Chicago, Ill.; John H. Fish, Detroit, Mich.; S. L. Collins, Knoxville, Iowa; Mr. Flannigan, Oconomowoc, Wis.; Grover C. Cook, Allegan, Mich.; Ross Focht, Eaton, Ohio; Dave Copeland, Chicago, Ill.; Chester Fordney, Saginaw, Mich.; J. M. Cushman, Des Moines, Iowa; Charles Frech, Eaton, Ohio; J. Bruce Gafill, South Bend, Ind.; O. L. Gulowsky, Detroit, Mich.; A. A. Garrabrant, Philadelphia, Pa.; H. D. Hastings, Jr., Green Bay, Wis.; Charles A. Gauer, Chicago, Ill.; Walter Herr, Chicago, Ill.; Harry D. George, Franklin, Ind.; A. F. Hickey, Chicago, Ill.; J. E. Gerrodette, New York City; J. J. Hoffman, Jackson, Mich; A. C. Gladieux, Fort Wayne, Ind.; J. P. Howe, Des Moines, Iowa; Dick Gooch, Paris, Ill.; R. Hozee, Hudsonville, Mich.; E. E. Grant, Chicago, Ill.; Clyde Hunter, Gary, Ind.; J. F. Grounds, Greenfield, Mich.; A. H. Ink, Cleveland, Ohio; O. S. Grimes, Grand Rapids, Mich.; Bert Jocum, Wyandotte, Mich.; C. C. Johnston, Eldon, Iowa; W. T. Leverenz, Danville, Ill.; Herbert H. Johnson, Connorsville, Ind.; John Lille, Coopersville, Mich.; H. A. Jones, Pittsburgh, Pa.; J. P. Longtine, Superior, Wis.; Lee Jordan, Edmore, Mich.; Earl Luster, Taylorsville, Ill.; Mr. Kaifer, Port Huron, Mich.; S. E. Luster, Stonington, Ill.; Mr. Keim, Chicago, Ill.; Claude Mast, Coloma, Mich.; Paul Kempf, Saline, Mich.; F. H. Mayfield, Waukesha, Wis.; W. C. Kelsey, Cleveland, Ohio; Mr. McClukos, Kansas City, Mo.; J. Kiser, South Bend, Ind.; G. J. McKinney, Watervliet, Mich.; A. C. Kleutgen, Chicago, Ill.; W. A. McMillan, Milwaukee, Wis.; G. W. Deeve, Crawfordsville, Ind.; Vic Gooch, Paris, Ill.

STATION COMPETITION BETWEEN COMPANIES

(Continued from Page 94)

In addition to cost of company-owned stations and real estate, large companies have big investments in pumps and tanks leased to garage owners and gasoline dealers at a nominal rent of $1 a year. It cost about $400 for a pump and a 1,000-gallon tank, installed. Such dealers, of course, get as many tanks and pumps from as many companies as they think they need. In some cases as many as five different brands of gasoline and motor oil are dispensed at a station. A rather recent development is the installation of tanks and pumps

for lubricating oils in place of the old wagon-type tank.

Below is presented a table of 12 leading marketing companies, the number of stations they own and number of leased equipment units:

Company—	Own Stations	Leased Gasoline Units
Atlantic Refining	91	2,513
Gulf Oil	187	9,707
Pure Oil	213	2,152
Sinclair	121	1,617
S. O. of Indiana	1,668	4,799
S. O. of California	700	.....
S. O. of New Jersey	87	15,000
S. O. of New York	10	19,000
Shell Co. of California	204	.....
S. O. of Ohio	410	2,500
The Texas Co.	160	4 835
Union Oil of California	207	30

Figures above are as of December 31, 1922, except that Standard Oil of New Jersey stations are as of today, Pure Oil's stations include a number under construction about the end of 1922 and Standard Oil of California's stations are approximately as of today, the company having had 550 at the end of 1922. In addition to the gasoline pumps leased, The Texas Co. has 6,959 units leased for kerosene and lubricating oils. Atlantic Refining Co., in addition to figures shown above, serves between 15,000 and 16,000 pumps owned by individuals in Pennsylvania, many of which were bought originally from Atlantic Refining. California companies do not make a practice of leasing equipment.

Expensive Requirements

At the close of 1922, Standard Oil of New York showed its investment in leased equipment at $4,854,020, an average of $234 a unit; this average includes equipment installed a long time with depreciation chargeoffs meanwhile. The Texas Co. had an investment of $2,314,156 in its leased equipment.

The table above shows but a portion of the number of gasoline pumps and stations doing business. It is estimated that in Greater New York and Long Island there are 6,000 garages and 4,000 filling stations, or 10,000 points for retail distribution of gasoline. Each of these, of course, would average at least three pumps and tanks. A year ago Indianapolis had 259 gasoline stations of which Standard Oil of Indiana had 100. Today there are 348 stations of which Indiana has 125, including those being erected.

Company-owned stations are justified by officials on the basis that they advertise the company's product and also tend to stabilize prices. But when a company puts in its own station it must having nothing short of the best location, equipment and employes. An individual can set up a gasoline station on an unoccupied space for a nominal rental (on a 60-day removal clause), have his equipment installed for $1 a year and work as many hours as he chooses. A company-owned station must have at least two employes receiving an average of $6 for an 8 or 10-hour day, plus all the refinements and free service which present-day gasoline selling requires to get and keep the business.

TECHNICAL LIBRARY IS OPENED IN TULSA

With approximately 100 guests present a technical library was opened at the Public Library Building of Tulsa last week. Many leading technical men of the petroleum industry were present at the opening held under the auspices of the Technical Club of Tulsa, which for several weeks had planned the event to take place during International Petroleum Exposition and Congress. Although the library is not limited to any particular industry it is planned to make it of special value to the petroleum industry. The library at present has approximately 1,000 volumes and this will be increased to 2,000 volumes before the end of the year. According to present plans the library will become a distributing center for the men and women of the Mid-Continent area who are interested in any of the several phases of petroleum technology.

Representatives of several of the engineering branches were present at the opening. During the Exposition meetings of the Petroleum Division of the American Institute of Mining and Metallurgical Engineers and the Mid-Continent Section of the American Society of Mechanical Engineers were largely attended and interesting programs were carried out. An open technical session was also held.

NEWFOUNDLAND OIL SURVEY NEXT SPRING

Serious effort will be made in the spring of 1924 to develop the oil fields lying along the west coast of Newfoundland, according to a report forwarded to the Department of Commerce by Consul General Gunsualus. These fields comprise two distinct areas, one at Parsons Pond with an adjacent smaller field east of Parsons Pond and south of White Bay. This area totals some 200,000 acres about 75,000 of which have been taken up by development companies.

The second area is situated north of Hawk Bay and comprises about 25,000 acres. An oil expert with experience in American fields has sailed from here in the interest of a syndicate headed by George E. Bearns and C. A. Furu, of London, Eng., and D. H. Eaton of Toronto. A survey will also be made of the property owned by Sir Mortimer Davis, head of the Imperial Tobacco Co., Ltd., London, Eng. The Bearns property includes the area at Hawkes Bay and some 50,500 acres at Parsons Pond.

Sir Mortimer Davis' interests are 6,500 acres south of the Bearns holdings and 12,800 acres south of White Bay. The Reid Newfoundland Co. also owns a large tract of territory in the vicinity. The property is about 20 miles north in a general direction of the site of the Armstrong Whitworth Humber mouth.

CURB PUMP FIGHT STILL ON

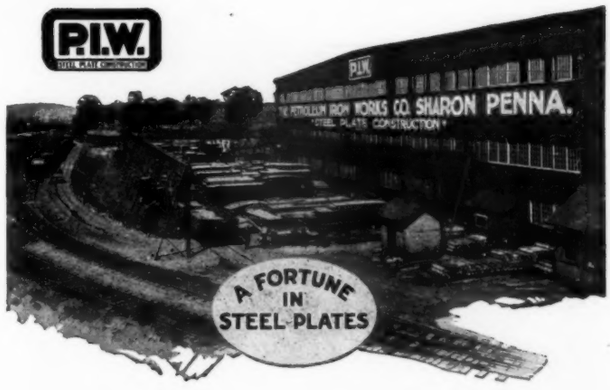
The paving, sewering and highways committee of the Manchester City Corporation has decided to recommend to the City Council the removal of petrol pumps that have been placed on the highways in the city and its environs. The ground of the decision, it appears, is that the use of pumps by motorists causes an undue obstruction. A reporter of the "Manchester Guardian" was informed that on this point opinion among authorities is divided. There are some who think that filling of a tank at a petrol pump is a quicker and less obstructive operation than the filling of it by carrying petrol cans across the footpath from shop or garage to motor.

TANK WAGON MEASURES

Tentative specifications and tolerances on vehicle tanks used as measures in the delivery of gasolines and oils, adopted at the sixteenth annual conferences of weights and measures officials, have been sent out by F. S. Holbrook, secretary of the committee on specifications and tolerances. The tentative specifications on which criticisms are asked before their final adoption by the 1924 conference deal in detail with fitting up of tank wagons so that accurate measure is made certain. Tolerances range from a half-gallon on a 175-gallon tank to 6 gallons on a 1,500-gallon tank.

ARKANSAS GASOLINE TAX

The Standard Oil Co. of Louisiana recently paid to the State of Arkansas $31,000 as tax on gasoline sold in the State during August. The Magnolia Petroleum Co. paid $29,062.42, the Pierce Oil Corp., $18,090.62 and the Gay Oil Co., $8,923.50. The total of collections under the 3-cent per gallon tax for August was about $160,000. The total for July was about $140,000.



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CUT IN PRICE EXPORT GASOLINE ONLY CHANGE IN EASTERN MARKETS

By N. O. Fanning

NEW YORK, Oct. 15.—The refined oil markets in the Atlantic Coast district were comparatively quiet during the past week. The only important revision in prices was a reduction in export prices of gasoline of one-half cent. This is believed to be due to competition from California oils, together with smaller consumption and larger stocks abroad.

Local refiners are aware that the flood of California oil has largely overstocked the foreign markets, especially in Europe and the Far East. This is what happened during 1920, and the 1921 export market reflected this in a marked slump. It is a question whether our big exports of the early part of this year can be maintained much longer.

The Dutch-Shell combine has presented stiff competition to the Standard and other American companies this year, because of its heavy shipments of cheap California refined products to Japan and other Far Eastern countries, while it has shipped large quantities of California crude to its Mexican refineries, where it has been turned into the finished product and shipped to Europe.

It is considered not at all unlikely that there will be further reductions in export oil quotations before the winter is over.

Gasoline Situation unchanged

Local marketers of gasoline have nothing to complain of as far as consumption is concerned. However, with winter approaching, western Pennsylvania and Mid-Continent refiners appear anxious to dispose of as much of their gasoline as possible in the eastern markets, so that heavy tank car offerings are expected at even lower prices than now prevail. This will undoubtedly result in generally lower tank wagon prices throughout this territory before winter is over.

However, there is a minimum beyond which gasoline prices cannot go. The present tank wagon price of 18½ cents is believed to be within 2 or 3 cents of that minimum. It is unlikely that reductions will be carried as far as 3 cents, and a turn in the situation as to production would, of course, change the whole aspect of the market.

That electrical appliances have cut deeply into consumption of kerosene for heating and illuminating purposes is well known. The perfection of a small electric heater for use in the home has not helped the situation any. Refiners, however, have an alternative in the development of the use of furnace oil, which is nothing more than a low grade of kerosene. This now sells at about 10 cents per gallon, as against a retail price of about 16 cents for kerosene.

During the past two or three months kerosene consumption fell off materially as compared with the earlier months of this year, but it is believed that the demand will begin to recover within a short time. However, kerosene prices have, alone of all oil products, held up throughout the past year, and in many quarters lower prices are believed about due. There is now a span of less than five points between gasoline and kerosene prices in this territory.

Oil Receipts Large

A continuation of the heavy rate of receipts of crude and refined oils by water at Atlantic Coast ports was recorded during the week ended October 12, when the daily average receipts were estimated at 516,000 barrels, against 494,000 barrels during the week ended October 5.

Receipts from the Gulf Coast were the largest on record, averaging 239,000 barrels daily, or a grand total of 1,675,000 barrels.

Receipts from Mexico fell off quite sharply as compared with previous weeks, while Pacific Coast receipts held up well.

Receipts of crude oil and refined products by water at the port of New York during the week ended October 12, are estimated at 304,000 barrels daily, the second largest week on record. Nearly 30 per cent of this movement was from the Pacific Coast.

Receipts at Philadelphia were the largest on record, averaging 139,000 barrels daily, the bulk of these shipments, or 115,000 barrels daily, coming from the Gulf Coast.

The following table shows the estimated daily average receipts of crude and refined oil by water at the principal Atlantic Coast ports for the last two weeks, and for the months of September and August (in barrels):

	Week Ended		Month	
	Oct. 12	Oct. 5	Sept.	Aug.
New York	304,000	187,000	193,000	214,000
Philadelphia	139,000	133,000	76,000	110,000
Baltimore	24,000	52,000	59,000	33,000
Boston	11,000	19,000	23,000	24,000
Fall River	10,000	30,000	15,000	19,000
Providence	11,000	11,000	21,000	23,000
Norfolk	.....	9,000	8,000	8,000
Charleston	.....	28,000	2,000	12,000
Miscellaneous	17,000	25,000	23,000	18,000
Total daily average	516,000	494,000	420,000	486,000

Mexican crude oil is increasingly scarce, and it is doubtful whether present low price levels will continue much longer.

SHIPPING CONTRACT TO GULF CO.

GALVESTON, Texas, Oct. 15.—The United States Shipping Board has awarded to the Gulf Refining Co. a contract to supply fuel oil to shipping board vessels in the Galveston district from October 1, 1923 to December 31, 1924, and calls for 1,500,000 bbls. at $1.14½ per bbl. The former contract, also held by the Gulf company called for 1,200,000 bbls. at $1.30 per bbl.

MASSACHUSETTS GASOLINE RATE

BOSTON, Mass., Oct. 15.—Discrimination against motorists in Massachusetts is alleged in the findings of the investigation conducted into the price of gasoline in Massachusetts and elsewhere by the Commission on the Necessaries of Life. The commission states the price for gasoline in other States is considerably under the price in Massachusetts and to a greater degree than the difference in freight ratest to those States and to Massachusetts from oil districts would warrant. A copy of the report is being submitted to the Federal Trade Commission with a request that the question be taken under consideration to determine whether discrimination has been made against Massachusetts consumers. Attorney General J. R. Benton said he would submit a copy of the report to the conference of Attorneys General to be held in Chicago October 15.

ISLAND OIL WINS SUIT

WASHINGTON, Oct. 15.—The Island Oil Marketing Corp. won in the United States Supreme Court its suit requiring the New England Oil Co. to pay $921,835 damages for breach of a crude oil marketing contract. The Supreme Court denied the petition of the New England Oil Corp. to review judgment of the lower courts.

CONVENTION HELD BY TECHNOLOGISTS

(Continued from Page 60)

sure gauge attached to the lead line from each well.

The results of the various back pressures were recorded from January 1 to September 15. It was shown that in January by building up pressures of 15 pounds and later releasing the back pressure entirely, the wells were little effected. Beginning February 10, with no back pressure there was a gas ratio of 1,160 feet per barrel and on May 6 with no back pressure the gas ratio was 1,070 feet per barrel. The highest ratio was in the period commencing with July 10. A back pressure of 76 pounds was applied and 1,620 feet of gas was required to produce a barrel of oil. After June 20 the higher back pressure was applied because pro-rating of runs had become effective and it was necessary to curtail production. During the last two months of the tests the average content per thousand feet of gas was generally higher, with the wells producing against about 50 pounds of back pressure. Mr. Lovejoy said that this might be partially accounted for by the fact that they had gas lines connected to the roofs of two 55,000-bbl. tanks, which were full of oil and that undoubtedly some very rich gas came into the plant from the tanks. Mr. Lovejoy, however, was of the opinion that a back pressure does increase the G. P. M. to some extent. He added that the gravity of the oil did not vary appreciably with the back pressure. After the pumping wells were shut down in July they were left connected with the traps and make a small amount of gas. Mr. Lovejoy said that the back pressure system of curtailing production had proved satisfactory and that production can be controlled almost to the barrel by the regulation of the back pressure. In the frequent times when tests were made to ascertain whether the wells were being damaged by the heavy back pressure it was found when all pressure was taken away that the wells responded with the full production they had been making under open flow.

Employe Invents Device

Mr. Lovejoy then described the results of experiments made with the stop cocking method of producing gas, suggested by H. C. George of the United States Bureau of Mines by which method the well is completely closed and the operation repeated.

One of the Amerada's employes devised an apparatus which automatically opens and closes the valves at the proper time, making continuous operation possible. The results from this have been very encouraging. Mr. Lovejoy said from September 1 to September 20 not only was the gas volume of oil decreased by 172 feet feet per barrel or 17 per cent, but the actual production of the well was increased from 27.5 bbls. to 31 bbls., or 13 per cent. The well on which the experiment was tried would make two flows about 20 minutes apart and then would not flow again for 2 hours. In some cases, during the 2-hour period, the well built up enough pressure to cause the valve to release, but this would not be followed by a flow of oil. The well was equipped with 3-inch tubing, but he thought better results will be obtained by the use of 2-inch tubing.

In closing his address Mr. Lovejoy said he hesitated to present conclusions. "It is difficult to believe that back pressures on flowing wells is a waste rather than a conservation of natural forces, yet this is the result of our tests on straight-back pressures although the tests on the stop cocking methods gave very encouraging results."

Electric Welding of Steel Tanks

Harold B. Price gave a description of electric welding of the tops and bottoms of tanks, giving the results of work done on 55,000-bbl. and 80,000-bbl. tanks in Oklahoma and Texas. In the early days of electric tank welding the tanks were riveted and the work of welding was slow. It took 5 inches of welding on each rivet. Later the plates were welded without rivets. The bottom plates are laid flat on the ground, tacked and welded as they lay and as the shell is being built the bottom of the tank is completed and tested and the welders are then ready for the roof. In testing the bottom for leaks or "pin holes" oil is forced under the tank and damp spots or wet spots on the floor of the tank indicated if the job is not absolutely tight and enable the welders to remedy any defects. These are seldom in evidence, he said. The same telltales appear on the roof after the tank is in use if it is not absolutely tight. In welding, a direct current machine with a short arc is considered the best. Only good welders can use the short-arc machine. It is the hardest to hold and requires a first class workman. In the use of welding no inside scaffold is necessary and no workman are needed under the roof. Repair work is easy he said. There is no reason now that welding the bottoms and roofs has proved successful, why the shell cannot be welded. Mr. Price had samples of electric welding, which he showed the interested engineers and photographs showing the progressive steps taken in the work.

Oliver U. Bradley read a paper on "The Evaluation of Casinghead Gas," made up very largely of graphs. The audience was in possession of the printed copies of the paper and were enabled to follow out Mr. Bradley's line of discussion.

E. L. Lockes' paper on "Recent Explorations from Petroleum in the United Kingdom" was read by Mr. DeGolyer in Mr. Ickes' absence. It detailed the geological surveys that had been made in Great Britain and the development work done there in the costly and unsuccessful venture of trying to prove that the tight little isle was an oil region.

YIELDS FROM VARIOUS GRADES OF CRUDE

(Continued from Page 66)

viscous neutrals are distilled off by fire and steam distillation. The residue representing all the heavier portions of the crude is treated, blended, filtered and centrifugally dewaxed. The naphtha used as a blending medium is distilled off, leaving a lubricating residuum which can be sold as a straight lubricant or can be fractionated into various neutrals and bright stock. Heretofore, it has not been possible to produce such an oil, since it will not cold settle and cannot be processed without undergoing a cracking distillation. The advantages of this method of processing are many, namely, a closer separation of wax and dilute oil, less investment in chilling tanks and less oil and naphtha in process, and larger yield of lubricating oil.

From the above it will be seen that the refiner should consider three essentials. First, he must select his crude. Second, he should know his equipment. Third, by a combination of the first two, select his crude according to his processing equipment.

GASOLINE-ELECTRIC LOCOMOTIVE

The Railway Age says, speaking of a gasoline-electric locomotive: "This locomotive, according to tests while in actual service, showed a consumption of 37 gallons of gasoline per 8-hour working day at 4.5 kw hours per gallon, 65 watt hours per ton mile and 166 kw hour per 8-hour day. About 3 quarts of oil are necessary daily. Locomotive maintenance cost has been about 5 cents per mile."

REFUSED TO REVIEW GAS CASE

WASHINGTON, Oct. 15. — The United States Supreme Court refused to review the case of the Indian Territory Illuminating Oil Co. in an action to force continued gas supply at existing rates to the Bartlesville Zinc Co. and the National Zinc Co.

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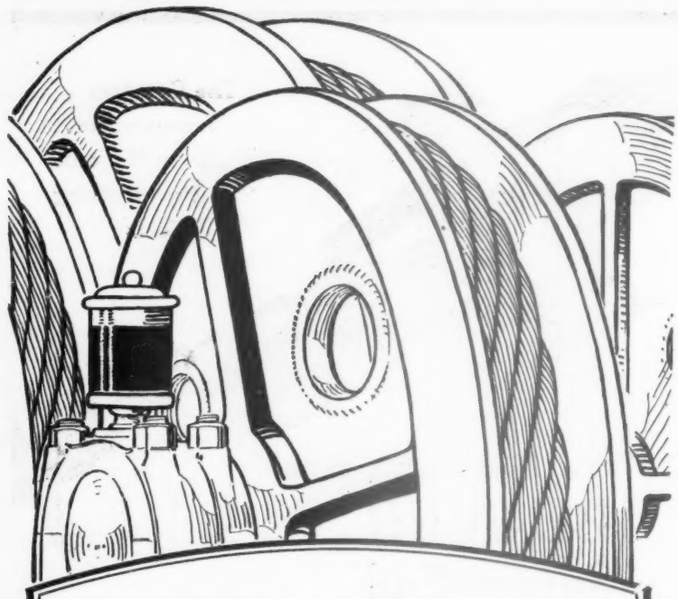

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GASOLINE CHIEF SUBJECT BEFORE ATTORNEYS GENERAL CONFERENCE

By J. B. Waldo

CHICAGO, Oct. 15.—The Attorneys General of 28 States accepted the invitation of O. S. Spellman, Attorney General of Nebraska, to the conference in this city for the announced purpose of discussing the gasoline question chiefly as it affects the consumer and to hear reports from investigations already made in several States as well as at Washington. The conference was proposed to outline what is a suitable action to be taken regarding the supply, distribution and price of gasoline. The discussion included what each State can do and what may be done collectively, based on information at hand and reports received from the various State attorneys and representatives of the Department of Justice and the United States Senate Committee, which has been investigating the gasoline situation under the leadership of Senator LaFollette.

Among those present were the following Attorneys General: Edward J. Brundage, Illinois; O. S. Spellman, Nebraska; Ben J. Gibson, Iowa; Herman L. Ekern, Wisconsin; Clifford L. Hilton, Minnesota; Jesse Barrett, Missouri; Charles B. Griffith, Kansas; Harry S. Bowman, New Mexico; George F. Short, Oklahoma; E. T. England, West Virginia; George Napier, Georgia; W. L. Walls, (by deputy) Wyoming; Deputy Attorney General George Cullen, New York. In addition, Gilbert E. Roe, attorney for the United States Senate Committee, which investigated the gasoline situation and which has been gathering data since the close of the last session of Congress, was on hand and Assistant Attorney General Seymour, of the Federal Department of Justice, and several representatives of the local United States Attorney's office. The meetings were held in the Old Colony Club Rooms in the LaSalle Hotel and none but the invited attorneys and Government representatives were admitted to the rooms.

Not to Hurt Industry

The sense of the conference was "not to hurt, but to help" legitimate industry, Attorney General O. S. Spellman of Nebraska, chairman, announced.

The greater part of the day was taken up with facts and figures offered by L. V. Nicholas, president of the National Petroleum Marketers' Association, and R. L. Welch, secretary of the American Petroleum Institute. Mr. Welch carried a portfolio and it was understood that he was prepared to place facts and figures in the oil situation before the attorneys general to offset possible arguments for drastic action against oil interests and would reaffirm statements made by oil men at recent conventions to the effect that many oil companies are operating at a loss and that prices are not only not exorbitant but in some instances below the actual cost of production. Mr. Welch declined to be interviewed beyond intimating that he was not present as a delegated representative of oil interests.

Mr. Nicholas declared after going before the conference that it was his opinion the men assembled here are a "bunch of level-headed men" who seem willing to give the industry a chance.

Attorney General Clifford L. Hilton of Minnesota, announced that an investigation of the gasoline situation in his State had just been completed. He said the present retail prices of petroleum products in Minnesota "are adequate to return a fair and reasonable profit to all thoes engaged in the business."

Too Many Stations, He Says

Attorney General Jesse W. Barrett, of Missouri said:

"Missouri has nothing to do with the control of oil production and very little to do with its refining. The retailing of gasoline is our chief concern, and in the gasoline retail trade in Missouri there is too little competition in prices and too much competition in service. The figures of the State Oil Inspection tell the story.

"There are more than 4,200 gasoline filling stations in our State. Their total sales for the first eight months of this year were 93,818,100 gallons. The average daily sales, therefore, for a filling stations amounts to 93 gallons. It is no answer to say that many of the stations are simply incidental to the garage business and that the larger stations sell a greater amount. If there are many stations selling more than the average there are necessarily many stations which sell less than the average. A casual observer can see that most of the filling stations are idle the greater part of the time.

"The overhead of each station includes not only labor, but also interest on the investment, for some one has to pay that interest. Apportion the daily overhead to sales of 100 gallons (or even 300 gallons, to be very conservative) and it is apparent that the filling stations cannot do business without adding from 50 per cent to 100 per cent to the wholesale price of gasoline."

Attorney General Edgren, of Wisconsin, made a statement of what was developed by the investigation in Wisconsin, in which it was stated that the prices as a rule, were uniform and based on the Standard's tank wagon prices and that the fear of retaliation prevented the so-called independents from making their own prices.

He claimed that the cost of distribution varied between 2½ and 4½ cents and that previous to the price cut the margins of profits had run as high as 10 cents a gallon. He also claimed that the contracts for the use of the Burton process prevented other companies of the Standard group from selling gasoline made by this process in Wisconsin.

Watchful Waiting Urged

A luncheon was tendered the assembled attorneys and some few guests at the Union League Club by Attorney General Brundage of Illinois. It was stated that all discussions as to the aims to be attained and the methods to be adopted would not be given out to the industry of to the general public at present. What the Attorneys General claim to be after is to find some method by which they "can enforce competition in producing, refining and distributing and a fair price to the public." One official present stated that so fas as he was concerned he did not believe the present was a good time to take any drastic action, but he favored a policy of watchful waiting to see if the desired results would not come from the action of forces, within and without the trade, that were at present at work and those results could not be judged for some little time. He did favor getting the facts so far as possible at this meeting.

PRAIRIE DECISION EXPECTED

WASHINGTON, Oct. 15.—Information from the offices of the Interstate Commerce Commission indicates that a decision in the case of the Prairie Pipe Line Co. to reduce rates on pipe line activities may be expected momentarily. The Commission's investigation into the reasonableness of rates has been completed, although no intimations were made that would indicate what action the committee would take.

OPENS DETROIT OFFICE

George D. Locke, vice president of the Barnsdall Refining Co., of Chicago, on his return to his Chicago office from Tulsa, where he attended the Petroleum Exposition, announced that his company had opened a Detroit office on October 15, to be in charge of Roy R. Fisher.

York State Oil Men Discuss Conditions At Annual Session

WELLSVILLE, N. Y., Oct. 15.—The New York State Oil Producers Association will hold its annual meeting and banquet in this city on Friday, October 19. A number of well known oil men will make addresses, among them being H. G. James of Wichita, Kan., president of the Missouri Oil Men's Association. John P. Herrick, of Olean, will give a report on the International Petroleum Exposition and Congress held in Tulsa last week, and C. G. Dorn and Forrest D. Dorn, of Bradford, Pa., will talk on their successful method of "flooding" oil wells in the Allegany and Bradford fields.

Lewis H. Thornton, president of the New York State Oil Producers' Association, in an interview before the meeting said:

California the Key

"Oil has been like steel was in the early days, either a prince or a pauper. There seems to have been no way to stabilize either the price or the amount of production. California is determined to sell her surplus in the East, and unless Mid-Continent wants to go out of the oil selling business in the great Eastern markets, what can be done but cut again the price of Mid-Continent oil? Under present circumstances that may mean lower quotations for Pennsylvania crude also.

"This brings me to the point I desire to make. The production of the average Pennsylvania crude oil well is so pitifully small measured now in quarts instead of even gallons for the thousands of wells which remain unflooded in the Allegheny and Bradford Fields, that overproduction of American oil as at present, if long continued, menaces the very life of the whole fields. Although I have complete confidence in the full ultimate recovery of the oil business in all branches, nevertheless, I believe a real crisis confronts the producers of Pennsylvania grade oil today."

Among the discussions at the New York producers' meeting will be the question of establishing Pennsylvania grade oil on a quality basis of its own, irrespective of California and Mid-Continent prices. A representative from the newly organized Pennsylvania Grade Oil Association expects to outline the proposition of nationally advertising the superior quality of pure Pennsylvania grade lubricants and thus establishing a general demand for them which will insure a stable price.

"Personally, I am fully convinced of the economic necessity and profitable result of such advertising if wisely handled. New York producers are many of them contributing to the funds for such purposes but they are anxious to hear about the whole scheme direct from the new association."

W. L. Russell, of the New York State Geological Department, who has been doing field work in the Allegheny, New York Field all summer, will present some of his conclusions upon flooding as at present practiced here. Captain Alwin Schaller and Carl Bjornssen, mechanical engineers, have a paper on the introduction of hot water under pressure for flooding purposes; valuation methods will be discussed and there will be a report from W. J. Richardson, chairman of the committee on marking the Taylor Triangle well, first producer in the Allegheny Field.

CANADIAN GASOLINE INQUIRY

A Canadian Government investigation into the spread in the price of gasoline between Canada and the northern part of the United States has been begun. Prof. L. G. Shanks, Manitoba Agricultural College, was appointed to make the inquiry. He will depart immediately for the United States.

POWELL PRODUCTION 260,575 BARRELS A DAY

CORSICANA, Tex., Oct. 17.—The production of the Powell Field as of Tuesday, October 16, was 260,575 bbls. Of this the Humble Oil & Refining Co. is credited with 102,000 bbls., the largest daily production of high grade oil any company has ever had from any one high grade oil field. The number of producing wells in the field on Tuesday was 355, and the average production per well was 734 bbls. per day. The average production of all the wells in the United States is about 8 bbls. per day, which would indicate that the average production per well per day in Powell is equal to that of 92 oil wells, taking them big and little, old and new, throughout the country. This 251,575 bbls. of crude is being produced from wells, which, if located in a compact group, 300 feet apart, would not cover an area 1¼ miles square.

Late wells include the Atlantic Oil Producing Co.'s No. 1 Kellum, Harris survey, 17,000 bbls.; Humble Oil & Refining Co.'s No. 4 Davis, Barry survey, 15,000 bbls.; No. 1 Fleming, Greer survey, 2,500 bbls.; No. 2-B Fleming, 4,800 bbls.; No. 2 Murchison, Barry survey, 2,000 bbls.; No. 8-B Humphreys, Smith survey, 2,600 bbls.; No. 11 Kent, Smith survey, 3,500 bbls.; Gulf Production Co.'s No. 1 Bush, Smith survey, 4,000 bbls.; Gulf Production Co.'s No. 3 L. T. Davis, 2,690 bbls.; Humble Oil & Refining Co.'s No. 11-C Irvine, 2,956 bbls.; same company's No. 7-B Ramsey, 4,430 bbls. Atlantic Oil Producing Co.'s No. 1 Thompson, abandoned at 2,555 feet.

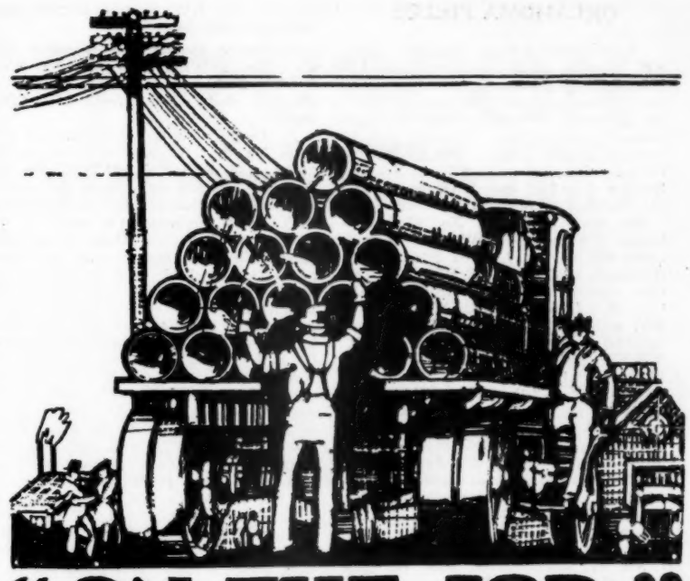
The average production of the Powell Field in August was 124,158 bbls. a day, and in September 170,235 bbls. a day. Mexia's daily average in August was 46,224 bbls. and in September 46,380 bbls. The daily average for Currie in August was 4,040 bbls., and in September 4,904 bbls. The September average in the entire East Central Texas area was 221,519 bbls. a day.

REASONS TO OPPOSE FEDERAL PRICE-FIXING

Paul Shoup, executive vice president of the Southern Pacific railroad and president of the Pacific Oil Co., says: "My belief is that a further thorough investigation will lead to the conclusion that Governmental price fixing and regulation of production would prove very unsatisfactory and is unnecessary. This conclusion is reached because of the following reasons: (1). The oil industry, over a long period of years, has served the public satisfactorily and has attracted the capital necessary to its continued expansion to meet the public need, both as to the manufacture and distribution, on the one hand, and the highly hazardous mining explorations necessary to find new sources of oil on the other. (2). The present situation arises from the most extraordinary coincidence of three fields of great initial production and with oil of high gasoline content coming in Southern California, close to the seaboard, thus affecting through cheap ocean transportation, the markets of the world, and at the same time being subject to a tremendous immediate development because of town lot ownership in all three fields. (3). The waste incident to overproduction is not in the oil itself to the extent generally supposed but in the labor and capital devoted to that production and the storage of the oil subsequently. (). The controlling conditions of the oil industry are entirely different from those of the railroads—the one business nationally controlled with respect to price making."

BOOSTER PLANT OPERATING

LOS ANGELES, Calif., Oct. 15.—California Petroleum Corp.'s new booster pumping plant at Los Alamitos, near Long Beach, is in operation. It is equipped with six 100-horse-power pumps, electrically operated, and a 10,000-bbl. tank.



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OKLAHOMA FIELDS

(Continued from Page 36)

SW, Section 35-25-1w, started at 113 bbls. after a 20-quart shot at 1,851-60 feet. The Amerada Petroleum Corp.'s No. 1 Sipe, C SW NE, Section 36-25-1w, made 27 bbls. after a 10-quart shot in sand at 1,860-77 feet. The Comar Oil Co.'s No. 7-A Blubaugh, SE cor. SE SW, Section 2-24-1w, was finished for 696 bbls. from sand at 2,567-90 feet.

The same company's No. 11-B Blubaugh, NW cor. NE SW, same section, made 887 bbls. at 1,833-81 feet; No. 16 Blubaugh, CWL SW NE SW, same section, started at 76 bbls. from 2,026-50 feet; No. 18-B Blubaugh, NW cor. SW SW, same section, made 156 bbls. at 1,865-86 feet, and No. 5 Blubaugh, C NW SE, same section, was completed for 135 bbls. at 1,987-2,035 feet. The Comar Oil Co.'s No. 3-B Gaume, CWL NW NE, same section, was good for 230 bbls. from sand at 2,186-2,217 feet.

The Comar Oil Co.'s No. 2 Carmichael, NW cor. NE, Section 3-24-1w, made 27 bbls. on the pump from sand at 2,151-2,226 feet, while No. 23 Carmichael, CWL E half NE, Section 3-24-1w, was good for 74 bbls. from sand at 2,587-2,614 feet. The same company's No. 8-A Ruzek, C SW SE, same section, made 112 bbls. at 2,585-2,633 feet. The Prairie Oil & Gas Co.'s No. 4-B Novotny, NE cor SE, Section 10-24-1w, started at 150 bbls. from sand at 2,142-66 feet.

Interest in New Well

Considerable interest was caused by the completion of the Healdton Oil & Gas Co.'s No. 5-A Rence, NE cor. NW, Section 11-24-1w, which made 643 bbls. the first 24 hours from Tonkawa sand at 2,550-67 feet. The White Eagle Oil & Gas Co.'s No. 10 Hubka, CNL NW SE SE, Section 10-24-1w, was spudding at 100 feet. The Healdton Oil & Gas Co.'s No. 11-A Rence, CWL SW NW, Section 11-24-1w, was drilling at 388 feet.

Pawnee County continued quiet. The Cosden Oil & Gas Co.'s No. 1 Phillips, NE cor. SE NW, Section 17-21-6, was drilling at 925 feet.

In Payne County the Mulberry Oil Co.'s No. 1 Wiley, NW cor. NE SW, Section 24-19-4, made 20 bbls. after a 20-quart shot in sand from 3,690-3,705 feet.

In Osage County, the Superior Oil Co.'s No. 5, NW cor. SW, Section 27-20-12, was drilling at 90 feet. In the Burbank area 49 wells were shut down in Sections 23, 24, 26 and 35, Township 27-5. This represents the scene of activity caused by the Osage lease sale August 5, 1923, and a large potential production is held back by failure to complete many of the wells, of which number 26 can be said to be shut down in the sand or on top of the anticipated pay formation. The Phillips Petroleum Co. and the Skelly Oil Co.'s No. 5, CWL NW SW SE, Section 23-27-5, was abandoned as dry at 3,068 feet. The Twin State Oil Co.'s No. 8, NW cor. Section 36-27-5, was good for 100 bbls. after shooting sand at 2,938-93 feet with 140 quarts. The Roxana Petroleum Corp. and the Marland Refining Co. had a rig for No. 4, SW cor. NE, Section 36-27-5.

Peters and others' No. 1 SW cor. NW, Section 17-27-6, got best pay from 2,976-84 feet and swabbed 140 bbls. in three days before a shot. It was drilled to a total depth of 3,012 feet and showed 180 bbls. in 3 hours when shot with 120 quarts. The Sinclair Oil & Gas Co.'s No. 11, NW cor. NE, Section 19-27-6, was shut down at 2,815 feet, while No. 13, C SW NE NE, same section, was completed for 100 bbls. after a 100-quart shot from 2,896-52 feet; No. 14, CEL SE NE NE, same section, was fishing for pipe at 2,894 feet, and No. 15, NE cor. SW, Section 20-27-6, made 135 bbls. the first 10 hours after a 150-quart shot at 2,915-76 feet, and No. 16, CEL SE NE SW, same section, was good for 225 bbls. the first 13 hours after shooting sand at 2,928-64 feet with 90 quarts. The Indian Territory Illuminating Oil Co. had a machine for No. 318, CSL NE, Section 34-29-11.

Pumper Drilled Deeper

The Mutual Oil Co.'s No. 5, CSL SW NE, Section 32-24-8, was pumping 150 bbls. from pay sand at 2,017-24 feet, an old well drilled deeper. The same company had a rig on the ground for No. 23, CNL NE NE, same section, and a machine for No. 8, SE cor. NE SW, Section 33-24-8, while No. 11, C NW SW, Section 33-24-8, was good for 30 bbls. after an 80-quart shot in sand at 654-69 feet. The Plymouth Petroleum Co.'s No. 1, CEL SE, Section 28-22-9, an old well, was abandoned as dry after drilling at 2,939 feet. The Finance Oil Co.'s No. 3, NE cor. SE NW, Section 26-23-11, was fishing for tools at 100 feet, and the same company's No. 5, CEL SE SW, Section 7-22-11, was dry at 1,963 feet.

In Okfuskee County the Link Oil Co. was spudding No. 1 Hicks, SE cor. SW, Section 4-13-8. Hartman & Mann's No. 6 Barnett, CNL SE SE, Section 22-12-11, was shut down at 2,780 feet. The Pairie Oil & Gas Co. had a rig on the ground for No. 1 Bird, SW cor. SE NW, Section 6-10-10.

The Magnolia Petroleum Co.'s No. 1 Byrd, SW cor. SE SE, Section 4-9-11, Hughes County, was good for 50 bbls. naturally, from pay sand at 2,957-63 feet. There was a gas sand at 2,945-57 feet, just above the oil pay.

In Muskogee County Cook & George's No. 1, CWL NW NW, Section 5-15-15, was drilling at 760 feet. Henson spudded and shut down at No. 1 Durant, NE cor. SE NE, Section 34-14-15.

Sewell and others had a machine for No. 1-A Bruner, CSL SW SE, Section 19-17-16, Wagoner County.

Other Operations

H. E. Jones' No. 3 Sells, SW cor. NE NE, Section 25-15-14, Okmulgee County, was dry at 1,575 feet. Richardson's No. 7 Buchanan, C SW NE, Section 31-15-14, was good for 15 bbls. after a 5-quart shot in Glenn sand from 1,700-35 feet. Frank Havel's No. 8 Wiley, CEL SW NE, Section 29-13-14, was drilling at 150 feet. New rigs in Township 15-11 included the Santuna Oil Co.'s No. 2, NW cor. Section 1, the Transcontinental Oil Co.'s No. 5, NW cor. SE SW, same section, and Misner and others No. 3 Gooden, SW cor. SE SE, Section 32. Claypool and others spudded and shut down in No. 2 Morris, SW cor. SE SW, Section 3-14-12.

In McIntosh County J. E. Weible's No. 1, SE cor. NE SW, Section 16-12-17, was drilling at 600 feet. Jordan and others were spudding No. 1 Hawkins, SW cor. NE SW, Section 20-12-14. McInturff and others' No. 2 Hawkins, SW cor. NW SE, same section, started off with 7,000,000 feet of gas from sand at 2,078-88 feet.

Lewis & Clarks' No. 1 Long, CWL SW NE SW, Section 33-8-8, Seminole County, was drilling at 2,110 feet after getting a 50-bbl. show in sand from 2,089-2,101 feet. The Tidal Oil staked a location for No. 1, NW cor. Section 18-8-8. The Amster Oil Co. was moving in material for No. 1, C SE SE SW, Section 28-8-8. The Oklahoma Co.'s No. 4 Foster, SW cor. NE NE, Section 32-8-8, was drilling at 250 feet. The Oklahoma Co.'s No. 1 Revels, SW cor. NE NW, Section 33-8-8, was spudding. The Producers & Refiners Corp. was spudding No. 1 Narcome, C NE SW NW, Section 14-7-8.

Okmulgee County

In Okmulgee County the Fee Oil Co.'s No. 1, NW cor. NE, Section 35-15-12, an old well, was dry at 2,260 feet. The Preferred Oil Co.'s No. 6 Adams, CNL NW NE, Section 2-14-11, an old well, was also abandoned as dry at 2,910 feet. Logan & Wallace were spudding No. 4 Morton, NE cor. SE NE, Section 8-13-12.

Frank Sheety's No. 8 Scott, C SW NW, Section 23-13-14, made 15 bbls. after a 60-quart shot in sand from 1,736-57 feet. C. E. Campbell was spudding No. 3 Sampson, CNL SW NW, Section 30-15-15. W. B. Pine's No. 4-A Barnett, C NE NW, Section 3-11-12, was dry at 2,801 feet.

In Beckham County Curtis & Bell's No. 2 Smith, C NW NW, Section 6-[illegible]-22w, was dry at 3,005 feet. Coogan & Wallace's No. 1 Giles, NW cor. SW SW, Section 21-9n-22w, was shut down after spudding. In Beckham County, Phillips and others' No. 1 Thorne, CEL SW SW NE, Section 15-10-22w, was shut down at 90 feet. McKannie and others abandoned the location for No. 1 Green, NW cor. Section 34-10-22w. Grimes, Little and others spudded and shut down No. 1 Gardner, C SW NW SE, Section 35-9-24w.

The Summers Oil & Gas Co.'s No. 1 Ray, SW cor. NW, Section 19-20-5-[illegible], Garfield County, was drilling at [illegible] feet.

Creek County

There was little of interest in Creek County activities. The Prairie Oil & Gas Co. abandoned No. 2 Marshall, SE cor. SW NW, Section 31-17-9, after drilling to 640 feet. The Amerada Petroleum Corp. was spudding No. 1 Whitcomb, CSL SE NW, Section 2-16-9. The Prairie Oil & Gas Co.'s No. 1 Edwards, NW cor. Section 6-16-9, started at [illegible] bbls. naturally from pay sand at 2,737-2,813 feet. The Carter Oil Co.'s No. 2 McDermott, NW cor. SE SW, Section 16-16-9, made 30 bbls. naturally the first 24 hours after plugging back to sand at 3,033-47 feet. Frank Moore was spudding No. 2 McDermott, NE cor. NW SW, same section.

A. B. Ice and others' No. 1-A Posey, CEL SE NW SE, Section 27-16-9, was good for 50 bbls. naturally the first 24 hours from sand at 2,972-75 feet. Williams' No. 1-A Pepper, NE cor. SE NE, Section 9-16-10, was dry at 3,075 feet. The Independent Oil & Gas Co. was spudding No. 1 Barnett, SE cor. SW NE, Section 31-14-10. Bailey and others had a rig for No. 3 Jefferson, NW cor. SE SW, Section 30-19-9. The Eva Bell Oil Co.'s No. 1 Atkins, SW cor. NW SE, Section 17-18-9, was dry at 3,180 feet. The Transcontinental Oil Co. was spudding No. 2 Freeman, SW cor. SE SW, Section 14-17-8. The Lima Oil & Gas Co. had a rig for No. 1 Green, SE cor. NE NE, Section 24-17-8.

The Peters Petroleum Co.'s No. 2 Wilson, NW cor. SW NE, Section 22-16-8, was drilling at 250 feet. The Atlantic Oil Producing Co.'s No. 1 Fixico, SW cor. SE SE, Section 29-16-9, was a rig on the ground. The Wilcox Oil & Gas Co. had a rig for No. 6 Harjo, NW cor. SE SW, Section 35-16-8. The Bo-Vi-Bar Oil Co.'s No. 1 Wright, CEL NW NE SW, Section 19-17-9, was drilling at 360 feet. The Nowata Oil & Refining Co. had a rig for No. 3 Hendrickson, NW cor. NE NW, Section 21-16-9.

The Hartman Oil Co. had a rig for No. 1 Yellowhead, CEL NE NW, Section 4-16-10. The Pure Oil Co.'s No. 7 Yarhola, NE cor. Section 17-15-8, which started off at the rate of 573 bbls. the first 24 hours following a 140-quart shot in sand at 3,699-2,743 feet, was making 500 bbls. a few days later. The Eastern Oil Co.'s No. 1 Beaver, SW cor. Section 20-15-8, was dry at 3,797 feet. The Prairie Oil & Gas Co.'s No. 1 Bearhead, NW cor. NE, Section 14-14-8, was drilling at 350 feet, and the same company had a rig for No. 4 Kernal, NW cor. NE SE, Section 3-14-8. J. E. Crosbie's No. 1 McIntosh, SW cor SE NE, Section 29-15-10, was dry at 3,315 feet. The Phillips Petroleum Co.'s No. 3 Wilmer, SE cor. SW SW, Section 4-15-9, made 150 bbls. naturally at 2,914-16 feet. Eastern Oil Co.'s No. 1 Fish, NW cor. Section 16-15-8, was dry at 3,833 feet.

The Skelly Oil Co.'s No. 2 McIntosh, NE cor. NW SE, Section 29-15-10, made 125 bbls. naturally the first 24 hours from sand at 3,278-91 feet. The Independent Oil & Gas Co. was spudding No. 1 McIntosh, SE cor. NW NW, same section. Carman and others had a rig on the ground for No. 1-A Tiger, NE cor. SE, Section 5-15-9. The Wait-Phillips Co.'s No. 2 McIntosh, SE cor. SW NE, Section 29-15-10, was showing for 70 bbls. after a 30-quart shot in sand at 3,279-90 feet. Wilcox & Oswalt's No. 1 Ewing, C NW NW SE, Section 30-15-10, was dry at 3,575 feet. H. J.

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Wilcox Oil & Gas Co.'s No. 1 Burton, NE cor. SE, Section 32-15-10, was drilling at 320 feet. The Independent Oil & Gas Co.'s No. 1 Barnett, SE cor. SW NE, Section 31-14-10, was shut down for 20-inch casing at 60 feet.

In Caddo County Rucker and others were spudding at 10 feet in No. 2 Heim, SW cor. NE SE, Section 24-7n-9w.

John Graham's No. 1 Vaughn, SE cor. NE, Section 34-6n-6w, Grady County, was dry at 2,510 feet. The Nichols Oil & Gas Co.'s No. 1 Nesbit, SE cor. Section 8-6n-7w, was dry at 3,011 feet. The Concord Oil Co.'s No. 1, SW cor. Section 16-5n-8w, was drilling at 1,000 feet.

In western Stephens County the Glenhoma Oil Co.'s No. 1 Wadkins, SW cor. SE SE, Section 14-1n-9w, set 21 feet of surface casing and was drilling ahead. The Safety First Oil Co. had a rig for No. 6 Rockwood, NW cor. NE SW, Section 20-1s-8w.

In Jefferson County the J. C. Cook Oil Co. was spudding for No. 1 Nail, C NW NW NW, Section 36-5s-8w.

Carter County

In Carter County the Cameron Refining Co. had a rig on the ground for No. 1 Smith, C SE SE SW, Section 4-2s-3w. The Atlantic Oil Producing Co. was rigging up a rotary for No. 1 Jefferson, C SW NE NW, Section 25-2s-3w; the same company was drilling at 1,860 feet in No. 2 Lahman, C SE NW NE, same section, and was drilling at 130 feet in No. 1 Stanton, C NW NE NW, same section. Wirt Franklin's No. 2 Harris, C NE NE NE, same section, was good for 250 bbls. the first 24 hours, flowing naturally from sands at 2,231-38 and 2,300-19 feet. The Magnolia Petroluem Co.'s No. 3 Davis, C NE SE NE, same section, started at 400 bbls. naturally from sand at 2,011-30 feet. Schermerhorn had a rig for No. 1 Holman, C SW NW NE, same section. The Texas Co.'s No. 2 Johnson, C NW NE SE, Section 31-2s-2w, was finished for 60 bbls. naturally from sand at 2,570-90 feet.

The Cameron Refining Co. spudded No. 1 Smith, C SE SE SW, Section 24-2s-3w. The Magnolia Petroleum Co.'s No. 2 Smith, C SE SW SW, same section, was drilling at 200 feet; No. 3 CSW SE SW, same section, was a rig. Wirt Franklin's No. 3 Gallaher, C NW SW NE, Section 25-2s-3w, was drilling at 60 feet. The Twin State Oil Co. had a rig for No. 2 Jefferson, C NE SE NW, same section. The Coline Oil Co. No. 5 Airington, C NW NW SW, Section 7-2s-2w, started at 80 bbls. naturally from sand at 2,478-2,520 feet. The Magnolia Petroleum Co.'s No. 11 Bennett, C NW NW NW, Section 31-2s-2w, made 100 bbls. naturally the first 24 hours from sand at 2,774-86 feet.

Sutherland and others had a rotary rig for No. 2 Poland, C SE NW NW, Section 5-3s-2w. The Coline Oil Co.'s No. 36 Jones, CEL NW NE SW, Section 4-4s-3w, settled to 400 bbls., flowing naturally from sandy lime at 2,540-45 feet. The Wolverine Oil Co.'s No. 58 Dillard, CSL SE NE NE, Section 22-4s-2w, was making 175 bbls. from broken sands at 2,190-2,400 feet, while No. 104 Dillard, CWL NW NW NE, same section, was good for 57 bbls. at 2,229-2,305 feet; No. 105 Dillard, NW cor. SW, same section, was finished for 50 bbls. at 2,475-90 feet, and No. 110 Dillard, CSL NE NE NE, same section, was flowing 345 bbls. from broken sands drilled from 2,003-2,542 feet.

SAN ANTONIO'S SEVEN-CENT GAS

SAN ANTONIO, Texas, Oct. 15.—Automobile owners of this city are buying gasoline at several stations at 7 cents, the lowest retail price in several years. The extremely low price is the result of a "price war" in this city for many months. The reduction to 7 cents by several companies followed the action of the Gulf Refining Co., which early this week reduced the retail price from 12 to 11 cents. The Atlas Petroleum Co., which first made the reduction, announced that the new price would prevail until markets became stablized.

RECENT NEW WELLS IN KEVIN-SUNBURST FIELD

SHELBY, Mont., Oct. 13.—An unusual number of wells figured in the news from the Kevin-Sunburst Field the past week. There are 125 wells producing in the field and 31 wells actually drilling while the rigs and authorized locations number 26.

The Sweetgrass Oil Co., Ltd.'s, No. 2 Norem, CWL NE SE, Section 4-34-2w, got the top of the Ellis sand at 1,483 feet and drilled in 1 foot. The well is flowing at 30-minute intervals over the top of the derrick, due to the unusual gas pressure. It was rated a 300-bbl well. No. 1 on this lease came in like No. 2, but was drilled too deep and into sulphur water, which greatly reduced the production. Wells in that part of the field have shown more gas in the Ellis sand than is the rule and No. 2 found a 3,000,000-foot gas production in the Sunburst sand which is being used for fuel.

The Western Petroleum Exploration Co.'s No. 2 Swears, NE cor. SE SW, Section 4-35-2w got Ellis sand at 1,685 feet and was drilled to 1,701½ feet. Oil arose over 800 feet in the hole. Swabbing failed to lower the oil and it will be put on the pump without shooting. This well is producing 10 bbls. a day from the Sunburst sand, which was shot. The same company's No. 3 Swears, SW cor. Section 4-35-2w had a very small showing in the Ellis and a lot of sulphur water. It was plugged and abandoned at 1,725 feet. This was a surprise, as it offsets a well that started at 131 bbls. a day.

The Sunburst Oil & Gas Co. and Eline's No. 1 Suhr, C NE SW, Section 9-34-2w, got the top of the Ellis sand at 1,512 feet, where there was a very small showing of oil. The hole filled 300 feet with sulphur water. It is being drilled deeper.

The California Oil Co.'s No. 2 McKee SE SW NE, Section 24-35-2w, lost the tools after drilling into the Ellis sand found at 1,492 feet. Oil arose 100 feet in the hole. The same well showed a 10-bbl. production in the Sunburst sand.

The Homestake Development Co.'s No. 4 Pewters, SE cor. NE NW, Section 22-35-2w, looks like a 30-bbl. well in Ellis sand at 1,452-62 feet. The well may be drilled a little deeper as the gas was just showing at 1,462 feet.

Nicholson and others' No. 1 State, SE cor. NW NE, Section 36-35-2w, found a 3,000,000-foot gas production in the Sunburst sand at 1,260 feet. The well has been capped and the gas will be piped to Sunburst and Kevin for commercial uses. That area is expected to produce a large volume of gas. The Gordon Campbell Syndicate's No. 1 on the Stewart farm, in Section 25, found a 2,500,000-foot gas showing in the Sunburst sand at 1,260 feet.

No. 1 Jack Oil Co.'s No. 1 Buckner, CWL SW SW, Section 2-32-4w, got salt water at 2,150 feet and is shut down. It had not been decided whether to run a string of 5-inch casing to shut off the salt water, or abandon the test. It is believed to be certain that this well has not reached the Ellis sand that is producing in the developed part of the field, but the fact that salt water was found makes it somewhat doubtful if oil will be found in the Ellis sand.

McCarty & West's No. 1 Swift, SW cor. Section 3-34-2w, drilled about 1 foot into the Ellis sand found at 1,550 feet. There is about 500 feet of fluid in the hole but it had not been given a bailing test. The sand lay 32 feet deeper than expected, which was not encouraging.

The important Gladys Belle Oil Co. test on the Brown farm, NE cor. Section 19-37-4e, was 2,685 feet deep and shut down to await a small stem. The crew had been drilling in a hard sandy shale that shows enough oil to cover the tools and bailer. The Ellis sand is expected to be found about 2,750 feet.

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TYPE 2 (2 Bays)
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TYPE 3 (3 Bays) with Lantern
Widths: 56'-60'-64'-68'-72'-76'-80'-84'-88'-90'-96'-98'-100'-106'-108'-116'

TYPE 3M (Monitor)
Widths: 60'-64'-68'-72'-76'-80'-84'-88'-90'-96'-98'-100'-106'-108'-116'

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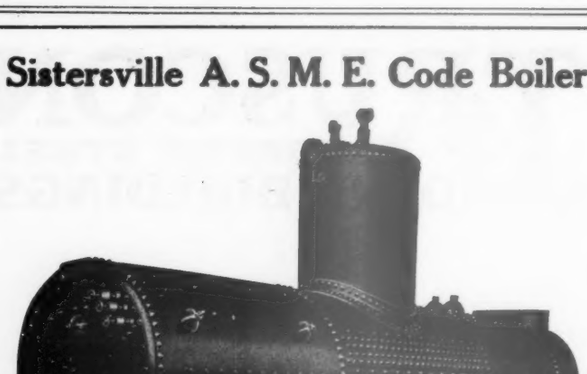

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GULF COAST

(Continued from Page 40)

Other completions in the Orange Pool include the Gulf Coast Oil Co.'s No. 3 Leon, a pumper at 3,345 feet, and Sinclair Oil & Gas Co.'s No. 5 Granger, a workover, making 145 bbls. at 3,400 feet. The Rycade Petroleum Co's No. 2-C State Land bailed salt water at 3,435 feet and is being deepened. The Kishi Development Co.'s No. 1 Bland sanded and is being washed, and its No. 2 Smith-Foreman is showing some oil and water at 3,175 feet. The Mutual Oil Co.'s No. 6 Ches on was abandoned at 3,075 feet.

Late in the week the Yount-Lee Oil Co.'s No. 2 Taylor fee on the northwest side of the dome at Hull came in flowing 2,500 bbls. at 3,015 feet. The Link Oil Co.'s No. 2 Pevito is a pumper at 3,200 feet. On the east side, the Republic Production Co.'s No. 19 Dolbear is making 100 bbls. and No. 20 Dolbear 100 bbls., 40 per cent water. Both are workovers. No. 45, another workover, is bailing. The Sun Oil Co.'s No. 9 Carr on the south side of the hill is pumping 100 bbls. of fluid, 15 per cent oil, at 1,200 feet.

The Gulf Co.'s No. 4 Harrison fee is drilling at 2,310 feet and the Higgins Oil & Fuel Co.'s No. 2 Taylor below 3,100 feet. The Monarch Oil & Refining Co's No. 2 Miller is below 3,500 feet and No. 3 around 3,125 feet. The Link Oil Co.'s No. 4 Rivere is at 2,375 feet. The Republic Production Co.'s Nos. 6 and 23 Dolbear are old holes being worked over with derricks standing for Nos. 72 and 73. The Empire Gas & Fuel Co. has a derrick for No. 5 Lynd.

West Columbia

At West Columbia, the Humble Oil & Refining Co's No. 6 Tyndale-Wyoming is pumping 25 bbls. of oil and much salt water, after being worked over. The Sun Oil Co.'s No. 2 Robertson, another workover, was abandoned in salt water at 3,415 feet. The Texas Co.'s No. 1 Abrams is going on the beam, following a workover. Part of the drill stem was pulled from the hole. This well is famous in the history of the Gulf Coast plains. It came in during July, 1920, and started flowing 28,000 bbls. per day with the drill pipe in the hole. The well produced over 2,500,000 bbls. before it quit flowing. A large portion of the output was produced while the market was $3 per bbl. The Texas Co. is deepening Nos 52 and 53 Hogg.

In the Goose Creek Pool, the Humble Oil & Refining Co.'s No. 45 Smith is bailing at 2,890 feet and the Gulf Coast-Crown Oil Co.'s joint No. 38 Galliard is testing at 4,725 feet. The Humble Co. is drilling No. 52 Smith below 1,490 feet and No. 10 Tabb at 2,345 feet. The Gulf Production Co.'s No. 7 Tabb is deepening at 3,235 feet and No. 6 Chapman-Bryan at the mouth of Goose Creek is drilling at 1,565 feet. Over on Spillman Island across the bay from the pool the J. R. Copeland Oil Co.'s No. 1 Spillman is around 4,650 feet.

The Reliance Oil Co.'s No. 1 Donohoe in the Batson Pool is idle and the Ada Bell Oil Co.'s No. 64 is drilling at 708 feet. The Rio Bravo Oil Co.'s No. 104-B, in the Saratoga Pool, is below 1,900 feet. At Spindletop, Wilson-Branch Oil Co.'s No. 6 Texas is drilling at 775 feet and the Rycade Petroleum Co.'s No. 2 McFadden, a deep test off the dome, is below 3,000 feet. The Sun Oil Co.'s No. 1 Ritter, on the north side at Pierce Junction, is around 2,815 feet. On the east side, the Humble Oil & Refining Co.'s No. 6 Fitzsimmons is at 2,818 feet and No. 3 Whitehead below 3,300 feet.

The Gulf Production and Snowden & McSweeney's No. 7 Davis in Big Creek, in Fort Bend County, was abandoned in gyp at 700 feet. It is located 1,000 feet northwest from No. 6 Davis, which came in last month and flowed 800 bbls. at 3,880 feet for several days, but sanded when it was pinched down to 200 bbls. per day.

The Rycade Petroleum Co. abandoned No. 1 Latrielle in the Jennings, La., Pool at 2,670 feet and The Texas Co.'s No. 2 Latrielle is being bailed at 1,650 feet. The Lake Charles Oil Co.'s No. 2 Fairchild in the Edgerly, La., Pool got salt water at 2,750 feet and is being drilled deeper. Gibson and others' No. 10 Landry is at 2,800 feet.

The Grand Coteau Dome Oil Co. is starting a test on lands belonging to St. Charles College, in St. Landry Parish, La. The college owns over 1,600 acres. Gas seepages, sulphur water springs and so-called paraffin dirt led to the decision to drill a test hole.

In Live Oak County, Texas, the Houston Oil Co.'s No. 3 Cartwright is drilling below 1,450 feet. The Noacke Oil Co. has started No. 1 Baldridge in Miller County.

Luling Field Extended

The Luling Field in Caldwell County was extended 1¼ miles to the southwest during the week when the Jarmon Oil Co.'s No. 1 Moore came in with an initial flow of 500 bbls. by heads at 2,105 feet, or about the same depth as the sand is found in the original part of the district. A derrick is up for No. 2 Moore. In the old part of the field the Magnolia Petroleum Co.'s No. 5 Merriweather is gassing and No. 4 on that lease is pumping 400 bbls. per day. The United North and South Oil Co. finished two wells, each rated at 1,000 bbls. initial flow. They are Nos. 4 Tabor and 1 Gideon. The Grayburg Oil Co. is drilling No. 1 Fielder around 2,000 feet.

Interest in the Luling development now centers in the efforts of the United North and South Oil Co. to extend the field across the San Marcos River over into Gaudalupe County. Its No. 1 Manford there is now drilling around 2,500 feet, having hit the Austin chalk at 2,440 feet. It is believed the pay sand will be found around 2,900 feet. No. 1 Engelke in Guadalupe County is below 2,300 feet and No. 1 Shanklin is drilling there at about the same depth.

The runs of the Magnolia Petroleum Co. from the field during September total 181,070.47 bbls., a part of which went into steel storage and the rest was shipped out in tank cars.

Another Dome Prospect

The test of the Vacuum Oil Co. at West Lake, north of Lake Charles, Calcasieu Parish, south Louisiana, is reported to have found dome formations, getting 3 feet of oil sand showing some saturation at 1,090 feet. At 1,129 feet the bit went into a water sand, which will be cased and the hole drilled deeper. The company has the acreage for 1 mile around the test blocked up. It is the first test drilled by the Vacuum Co. since the organization of its production department in the Gulf Coast territory about six months ago. A joint well with The Texas Co. was drilled in the Hull Pool. Houston parties are preparing to drill a number of shallow tests in Cameron Parish, in the Johnson Bayou region, with a specially made light rotary rig, operated by a motor and engine. These tests will be drilled to 1,000 feet or deeper in an effort to find dome formations. The operations will cover approximately 25,000 acres on which numerous gas escapes are noted and sulphur waters are found in many places. The Union Sulphur Co. is drilling a test for sulphur deposits in St. Mary Parish. In the Vinton Pool, the Gulf Refining Co. has started No. 30 Star-Vincent and H. H. Gieske's No. 1 Hayes.

All the major companies are displaying more interest in wildcat acreage, acquired at low bonus figures with no immediate drilling obligations. The Texas Co. has been leasing in Bastrop and Fayette Counties; the Humble Oil & Refining Co. south of Dayton in Liberty County and the Sun Oil Co. east of Splendora in Montgomery County. The report on the Vacuum Oil Co.'s test has caused an exodus of the scouts and lessers to the Lake Charles region. The Texas Co. has also blocked up some acreage 3 miles west of the Batson Pool. The same company is drilling a wildcat test on the Settegast land between the Blue Ridge and Pierce Junction Pools.

The Mutual Oil Co. is starting No. 1

Robinson, on the west side of the dome at Blue Ridge, and is also working over No. 1 Booth. The Freeport Sulphur Co.'s No. 11 Dannuabaum at Stratton Ridge is showing some light gravity oil at 4,300 feet and the Fairchild Petroleum Co. is setting screen in 40 feet of sand in No. 1 Boggs there at 4,585 feet for a test. This hole was sidetracked from 3,500 feet. The original hole was drilled to 4,525 feet and showed for a well, but soon sanded and was lost. The company has expended to date approximately $100,000 on this test.

Hindman & Co.'s No. 1, located 2 miles north of Anahuac in Chambers County, is showing some oil and gas at 927 feet. It was drilled with a light rig and a gasoline engine which will be replaced with a heavier rotary outfit. The Quick Development Co.'s No. 2 Peeler in Liberty County is drilling below 1,800 feet.

In Medina County, the Ina Oil Co. is going to deepen No. 1 Durst from 927 feet at which depth a small well was developed in a thin sand. The Devils Run Oil Co. has started No. 2 Turney in Edwards County and J. J. O'Hern and others' No. 1 San Pedro Ranch in Dimmitt County. The Transcontinental Oil Co. is drilling No. 1 Garzell in Bexar County. In Valverde County, Morris and others' No. 1 Moore is around 1,400 feet and the Independent Operator's No. 1 Whitehead below 1,800 feet. The East De Rio Co. is drilling No. 1 Long.

Four tests have been abandoned out in West Texas. In Brewster County, in the Big Bend section, the Marathon Oil Co. quit No. 2 Cage at 2,600 feet, and in Jeff Davis County, the Tatum Syndicate pulled No. 1 Tatum at 1,990 feet. The Sunshine Oil Co.'s No. 1 Van Horn in Reeves County was abandoned at 2,555 feet and in Scurry County, the Stanton Oil & Gas Co. pulled No. 1 Riley at 3,500 feet. In Reagan County, the Texon Land & Development Co.'s No. 3 University lands is below 1,200 feet with No. 4 rigging.

Coastal Pools

Late in the week the Humble Oil & Refining Co.'s No. 8 Winifree in the Orange Pool went into water at 4,250 feet. The Gulf Co.'s No. 5 Winifree is now making 500 bbls. per day. The Orange Petroleum Co.'s No. 1 Tillery missed the sand found by the Sun Oil Co. in No. 3 Gunstream at 3,450 feet, and is shut down. Same company's No. 5 Chesson is gassing after a workover. The American National Oil Co.'s No. 1 Winifree, 1 mile north and east of production, is setting 6⅝-inch casing at 3,425 feet to test 15 feet of sand.

FUEL OIL FOR LAKE SHIPS

"I have referred to the ease in procuring coal fuel along Great Lakes. The reverse is true about fuel oil," writes W. M. Connelly in Motorship. "To some extent on this account, several shipping board type 'Lakers' burning oil, were converted last year to coal burners. On the Fordonian we find bunkering a problem, and it involves considerable loss of time except at Sarnia, Ont., on St. Clair River. Otherwise, in American ports we find fuel is not available in sufficient quantity or accessible for commercial purposes except in Buffalo and Toledo. Even there, while prices are not unreasonable—being 5 cents per gallon—the deviation from course necessary for the purpose of fueling is about eight hours. That is inconvenient. However, I am advised, whether reliably or not, that responsible oil companies are contemplating putting oil barges, for fueling lake ships in service on the Detroit River, and they will supply Diesel oil to ships under way."

SAKHALIN OIL REPORT

Prof. Iki, of Tokyo University, has just returned from a year's sojourn in North Sakhalin. He says petroleum is oozing out of the ground over the northern part of the island and oil pools of great size are found everywhere.

FLOATING ROOF TEST OFFERED AT CHICAGO

CHICAGO, Oct. 17.—A test of the degree to which the Wiggins floating roof eliminates the fire hazard in storage tanks was made at the works of the Chicago Bridge & Iron Works on Tuesday afternoon before about 75 oil men and representatives of the press. Among those present were representatives of the Standard Oil Companies of Indiana, New York and New Jersey. It was claimed that the success of these tests demonstrated that 95 per cent of the average fire hazard was eliminated. Experts conceded that the floating roofs as designed by Mr. Wiggins seemed entirely practicable. It was claimed that working tests made at the plants of two oil companies showed a decrease of at least three-fourths in the average evaporation as compared with tanks with fixed roofs.

Tests included the burning of gasoline on the roofs of tanks filled with gasoline, the plunging of burning waste soaked with oil into the vents of the tanks, and other tests designed to show the stability of the roofs and their resistance to fire.

FRENCH GOVERNMENT SEEKS OIL

The French Journal Officiel announces the granting of 1,550.000 francs for expenses attached to the search for petroleum in France and for the National Office for Scientific and Industrial Inventions. A nest-egg of 20 000.000 francs was found (profits from Government control during war time,) from which the cost of borings, etc., were to be drawn, but this fresh grant appears to be a separate matter, although it cannot be said to err on the side of extravagance for such important work.

CONTINUED FIRMNESS FEATURE OF GROUP 3

(Continued from Page 26)

its November output based on present prices. Several other companies have also made large sales over November and a very limited amount is available for spot shipment over the balance of October.

Kerosene and Distillates

If there was any change in the kerosene situation it was not apparent. Few jobbers have sought lower prices since the recent tank wagon reduction in the Standard of Indiana and Standard of Nebraska territories and refiners are moving their output with prices unchanged. A few refiners are holding for higher prices on their burning distillates. There is strong demand but as yet buyers are not willing to give the prices asked by these refiners.

Fuel and Gas Oils

There has been a heavy movement of fuel oil from Oklahoma refiners, mostly on business that was placed the first of the month. Railroads are also taking large deliveries on their marginal contracts so that the supply and demand situation as far as Oklahoma plants are concerned is unchanged.

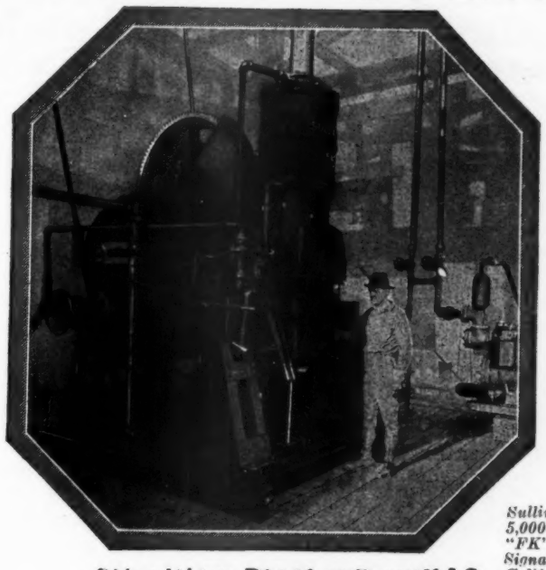
An exceptionally large movement to points where they have a freight rate advantage has aided the Oklahoma plants. There were at least a couple of large shipments to Kansas points during the past week from Oklahoma refiners.

Neutrals

"We have no complaint to make" is the usual reply when refiners and marketers are asked about the neutral situation. It is known that Cosden & Co. has been unable to fill the demand for certain grades, and the same situation applies to the smaller plants.

Wax

There is very little wax available in the Mid-Continent. Practically all plants are sold up over October and some over November. The strong demand is said to be due to decreased output in the East brought by many refiners changing from Pennsylvania to California crudes.



Sullivan 5,000-foot "FK" drill. Signal Hill, California

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TO OIL MEN who want more information about the Diamond Core Drills we exhibited in Tulsa, and the work done with them, we shall be glad to send our new Bulletin, No. 1580-0.

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No. 1 Latrielle in the Jennings, La., Pool at 2,670 feet and The Texas Co.'s

Blue Ridge and Pierce Junction
The Mutual Oil Co. is starting No. 1

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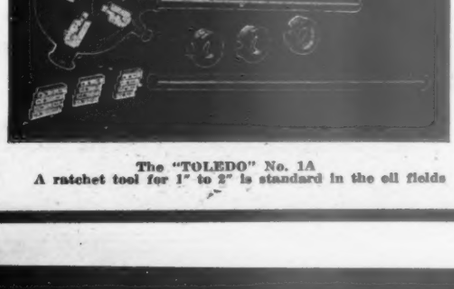


The "TOLEDO" No. 1A
A ratchet tool for 1" to 2" is standard in the oil fields

CALIFORNIA FIELDS

(Continued from Page 38)

at 4,528 feet. The oil from this new producer is clean and tests 28.1 degrees. Havenstrike & Baker Drilling Co. completed the Illustrated Review's No. 3 at 4,635 feet and presented the company with a 950-bbl. well. The oil, which tests 28.5 degrees, is clean and flowing through a ¾-inch bean shows a pressure of 700 pounds.

A check of wells nearing completion reveals the fact that nearly all of the expected producers during the next week or two will be brought in from the deep zone, although there are a few to be completed around the 4,000-foot level. Probably the deepest well will be the General Petroleum Co.'s No. 1 Clock, which was to have originally been completed at 6,000 feet. This well has been cleaned out to 5,016 feet and it is believed that it will be placed on production early next week. The Shell Oil Co. has two deep wells which are showing up unusually good and when No. 3 Nicholson, completed at 5,301 feet, and No. 2 Pickler, finished at 5,251 feet, are finished and put on production tests, the company will probably increase its output about 3,000 bbls. a day. The Shell's No. 1 Connett picked up a nice oil sand at 4,975 feet and this well will probably follow No. 3 Nicholson and No. 2 Pickler within a short time. The Petroleum Midway Co.'s No. 4 Harlow will also probably be listed as a completion within the next week or 10 days as the company is making final preparations to place it on production after completing it at 4,810 feet.

The Cooper Petroleum Co. is swabbing No. 1 Duncan and is expecting a fair sized well from the 4,000-foot level, while the Marine Oil Co. will put No. 5-A on the pump at 3,872 feet. The Pomona Oil Syndicate will also show a completion from the 4,000-foot level and should complete well No. 2, finished at 4,050 feet, within the next few days. The Henderson Petroleum Syndicate will probably show two completions during the coming week. No. 1-A Barry being completed at 4,675 feet and No. 1 Fackler, which was completed at 5,008 feet. Although the United Oil Co. recovered about 2,500 bbls. of oil during the past month from its No. 1 Bixby, the company has decided to deepen it another 100 feet or so, believing that the added hole will result in slightly increased production.

Huntington Beach

The daily production at Huntington Beach, which has been on the decline for several weeks, showed a further loss during the past week. Completions in this field have been getting fewer each week and the initial output has been showing a corresponding decrease. The only completion registered during the past week was the Union Oil Co.'s No. 20 Copeland, which was finished at 4,825 feet and started off flowing 500 bbls. a day under a pressure of 450 pounds. The oil from this well tests 25.3 degrees and shows a cut of 3 per cent. The Union put No. 3 Copeland on the pump after cleaning it out and deepening it to 4,756 feet and the well showed an output of about 100 bbls. The well, however, is very unsatisfactory as the oil is cutting about 35 per cent water. The only other nearest approach to a completion was the Shell Oil Co.'s No. 7 Ashton, which blew in while being swabbed. It flowed for several hours at the rate of about 1,000 bbls. a day and when finally completed it will probably be good for about 750 bbls. It was drilled to 4,850 feet and the oil on this first flow was about 25 degrees in gravity. The Standard Oil Co. is making preparations to abandon No. 1 Lomita at 4,475 feet in view of the fact that the well has not shown encouragement and does not warrant further drilling. The Petroleum Midway Co. is also going to abandon a well, No. 1 Clark, drilled to 3,540 feet, and it would not be surprising if the company also abandoned No. 1 Walker at 3,005 feet.

In the Torrance-Lomita district, the Chanslor-Canfield Midway Oil Co.'s No. 7 Torrance came in during the early part of the week producing 1,050 bbls. of clean 28.3 gravity oil. The same company also completed No. 7 Del Amo after drilling it to 3,368 feet but it was very small when compared with No. 7 Torrance, as its maximum production on the pump was 120 bbls. of 17 gravity oil. The Shell Oil Co., after plugging back its No. 1 Redondo Community from 4,805 feet to 3,500 feet, put it on a production test and it showed an output of slightly in excess of 100 bbls. The Fortuna Oil Co.'s well No. 1, which was completed last week, is still flowing approximately 1,100 bbls. a day and the company is making preparations to drill two offset wells, Nos. 2 and 3. The Bush-Voorhies Oil Co. has secured a lease west of the Fortuna Oil Co.'s No. 1 and will immediately begin drilling an offset.

The Standard Oil Co.'s No. 1 Dominguez and the Federal Drilling Co.'s No. 1 Gerner have been the center of interest for the past week or two because of reported showings and the possibility of extending the present field another mile south and east. The showing in the Standard's Dominguez well was considered of sufficient importance to warrant the setting of a string of casing at 3,398 feet. There have been no unusual developments during the past week in the Compton district and the outcome of the Julian Petroleum Co.'s Pico-Murphy well is still in doubt as the result of a bad 10-inch casing at 375 feet. The company reports that the casing is in very bad shape but that it hopes to be in a position to proceed in the very near future. The reported oil showings found in the Oak Ridge Oil Co.'s No. 1 Rossi at 4,656 feet in the Bandini district turned out to be false and were traced to oil used in circulating. There have been many reported showings at Bandini but they have all turned out to be false.

Oil field operations reported to the State Oil and Gas Supervisor show 24 new wells started, as compared with 33 during the previous week, a total for the current year to date of 1,105, as compared with 1,075 at the same time last year. Permits were issued for the following new wells:

Santa Fe Springs

Location,	company,	well—
	Associated Oil Co.—	
36-2-12		Clarke, 9.
1-3-12		Clarke, 10.
	Shell Co.—	
31-2-11		GHN, 12.
6-3-11		Slusher, 6-A.
	Standard Oil Co.—	
6-3-11		Weisel, 12.
	Union Oil Co.—	
31-2-11		Howard, 7.

Long Beach

24-4-13	Cook & Harpster, Inc., 1.	
24-4-13	Laddie Boy Nos. 1 and 2, 2.	
19-4-12	Mission Bell Oil Co., 1-A.	
19-4-12	Mission Bell Oil Co., 2.	

Huntington Beach

30-5-11	Carmen F. Carlson, 1.	
27-5-11	Down East Co., 2.	
30-5-11	John I. Carlson, 1.	

Torrance

	Fortuna Oil Co.-Huntington Signal Oil Co.—	
23-4-14		Barto, 1.
10-4-14	Fred B. Foster & Co., 66.	
	Shell Co.—	
13-4-14		Keystone Co., 1.
	Universal Cons. Oil Co.—	
23-4-14		Moore, 2.

MICHIGAN CITIES TO SELL OIL?

An amendment to the Home Rule Act for Michigan cities under which a municipality may engage in the sale of gasoline, motor lubricants and alcohol at wholesale and retail, has been drawn up by the Corporation Counsel's office at the instance of F. T. Castator, member of the Detroit Common Council, and will be forwarded to Governor Groesbeck for presentation to the Legislature when it convenes in special session in November. The proposed amendment also authorizes the ownership, construction, maintenance and operation of filling stations and storage plants. Criticism already has been directed toward the feasibility of selling plans of this nature on the part of cities on the ground proper sources of supply and buying connections will not be available.

RECEIPTS OF CALIFORNIA OIL AND IMPORTS OF PETROLEUM

Receipts of California crude and refined oils at the principal Atlantic and Gulf Coast ports for September totaled 5,528,000 bbls., a daily average of 184,267 bbls., compared with 6,564,000 bbls., a daily average of 211,741 bbls. for August.

Receipts at Atlantic and Gulf Coast ports for the week ended October 6, totaled 1,374,000 bbls., a daily average of 196,285 bbls., against 1,964,000 bbls., a daily average of 280,571 bbls. for the week ended September 29.

	Ttl. Mo. of Sept.	Ttl. Mo. of Aug.	Wk. End. Oct. 6	Wk. End. Sept. 29
At Atlantic Coast Ports:				
Baltimore	1,028,000	514,000	248,000	340,000
Boston	237 000	229,000	.....	160,000
New York	2,433,000	3,049,000	420,000	1,064,000
Philadelphia	470,000	987,000	248,000	155,000
Others	535,000	675,000	215,000	150,000
Total	4,703,000	5,454,000	1,131,000	1,869,000
Daily average	156,767	175,935	161,571	267,000
At Gulf Coast Ports:				
New Orleans and Baton Rouge	825,000	970,000	243,000	95,000
Port Arthur and Sabine district	.....	140,000	.....	.....
Total	3,319 000	3,918,000	610,000	829,000
Daily average	27,500	35 806	34,714	13,571
Total Atlantic and Gulf Coast Ports	5,528,000	6,564,000	1,374,000	1,964,000
Daily average	184,267	211,741	196,285	280.571

Imports of crude and refined oils at the principal ports for September totaled 6,844,000 bbls., a daily average of 228,133 bbls., compared with 7,736,000 bbls., a daily average of 249,548 bbls. for August.

Imports of the principal United States ports for the week ended October 6, totaled 1,681,000 bbls., a daily average of 240,143 bbls., compared with 1,667,000 bbls., a daily average of 238,143 bbls. for the week ended September 29.

	Ttl. Mo. of Sept.	Ttl. Mo. of Aug.	Wk. End. Oct. 6	Wk. End. Sept. 29
At Atlantic Coast Ports:				
Baltimore	263,000	430,000	112,000	30,000
Boston	435,000	295,000	41 000	126,000
New York	1,436,000	1,659,000	286,000	270,000
Philadelphia	490,000	456,000	232,000	111,000
Others	901,000	878,000	400,000	191,000
Total	3,525,000	3,818 000	1,071,000	838,000
Daily average	117,500	123,161	153,000	119,714
At Gulf Coast Ports:				
Galveston district	1,393,000	1,499,000	208,000	466,000
New Orleans and Baton Rouge	1,217,000	1,179,000	268,000	268,000
Port Arthur and Sabine district	547 000	1,038,000	134,000	75,000
Tampa	162,000	202,000	.....	20,000
Total	3,319,000	3,918,000	610,000	929,000
Daily average	110,633	126,387	87,143	118,429
At All U. S. Ports:				
Total	6,844,000	7,736,000	1,681,000	1,667,000
Daily average	228,133	249,548	240,143	238,143

DOMESTIC EXPORTS OF PETROLEUM AND REFINED PRODUCTS

	Month of August	Eight Months Ended August		
Petroleum—	1922	1923	1922	1923
Crude ....gallons	31,180,548	63,441,370	260,857,111	452,551,989
Crude ....dollars	1,331,666	2,000,490	12,358,692	15,615,769
Total refined petroleum....gallons	209,202,019	293,417 784	1,637,603,065	2,116,543,547
Total refined petroleum....dollars	24,761,884	27,063,537	213,455,969	227,473,721
Gasoline, naphtha and other light products ....gallons	36,009,904	76,757,581	403,409,152	561,861.822
Gasoline, naphtha and other light products	8,302,574	11,881,626	89,613,512	99,918,193
Oils—				
Illuminating ....gallons	86,641,437	79,548,150	581 787,352	542,544.546
Illuminating ....dollars	8,177,396	6,736,985	54,707,950	51,897,943
Gas and fuel ....gallons	59,530,469	114,762,945	426,888,794	774,313 481
Gas and fuel ....dollars	2,350,529	3,191,584	17,499,931	23,258,226
Lubricating ....gallons	27,020,209	22.349,108	225 517,767	237,823,698
Lubricating ....dollars	5,981,385	5,253,342	51,634,576	52,399,359
Paraffin wax ....pounds	28,738,855	23,771,038	183,446,814	218,320 059
Paraffin wax ....dollars	932,966	831,829	6,024,910	7,559,687

Russian Production Of Petroleum Shows Gain in Nine Months

Russian petroleum production for 1922-23 forms the subject of a report by Reconstruction (Vienna). The first three quarters of the current year are compared with those of the preceding year (in thousand poods), as follows:

	1922-23	1921-22
Baku, first quarter	49,985	41,346
Baku, second quarter	50,015	41,346
Baku, third quarter	55,478	45,642
Grosnij, first quarter	23,964	18,715
Grosnij, second quarter	20,197	21,934
Grosnij, third quarter	21,926	23,167
Emba, first quarter	2,167	2,037
Emba, second quarter	2,006	1,644
Emba, third quarter	2 060	2,321
Total 329,798		202,375

The interior requirements of Russia on the petroleum industry are as follows: Baku, 21,013,000 (13.3 per cent of gross output); Grosny, 10,541,000 (16 per cent); Emba, 459,000 (7.3 per cent). Financial situation of Asnjeft Co. continues to be precarious. Average output has assumed better proportions than was expected, but as the petroleum trust is not allowed to bring its own production to market, it is not in position to turn to account its increased output. Working expenses and freight rates are disproportionately high, so that the indebtedness of the petroleum trust is always increasing. In August Asnjeft Co. reckons to have receipts to amount of 2,360,000 gold rubles, while wages amount to 2,550,000 gold rubles. Total expenditures for August are estimated at 3,310,000 gold rubles; that is, one-third more than the expected revenue.

EQUIPPING OKLAHOMA STATIONS

The Gaso Pump & Burner Manufacturing Co. has the contract for equipping the five pumping stations on the Oklahoma Pipe Line Co.'s new pipe line from Hewitt to De Queen, Ark.

The equipment required will be five 10x18 suction pumps, five 5x10 discharge pumps and one 4½x12 discharge pump. The last named pump is a new item in the Gaso line, only two of these pumps having been completed and delivered by the company to date. This 4½x12 discharge pump represents the largest pump ever built in the Mid-Continent. The Gaso Pump & Burner Manufacturing Co. is also furnishing all fittings and river clamps for the above named pipe line.

MEXICAN OIL NOT EXHAUSTED

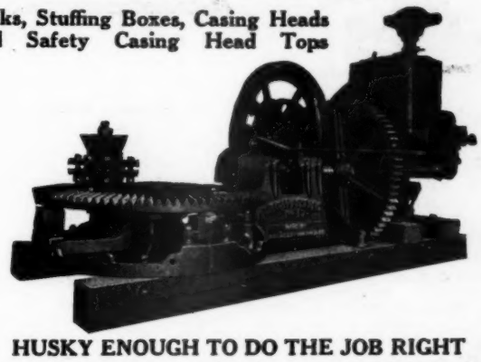
Oil in Mexico is by no means exhausted, according to Dr. J. J. Galloway, assistant professor of paleontology, Columbia University. Dr. Galloway has just completed a three months' research for the International Petroleum Co. (Mexican Seaboard), assisted by E. A. McKenna, consulting geologist for the Seaboard, John Bell, chief geologist, as well as the entire geological, statistical and engineering staffs of the company.

More Power—Less Vibration

Instant Service

Insist on Lightning Pumping Powers They Are Correct in Design

Jacks, Stuffing Boxes, Casing Heads and Safety Casing Head Tops



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No. 1—6 to 8 H. P. engine, weight 3,200 Lb.
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No. 4—Belt drive, weight 6,500 Lb.

Turntable gear is easily removable and having a broad face, coarse teeth and large diameter will stand up to the heaviest loads.

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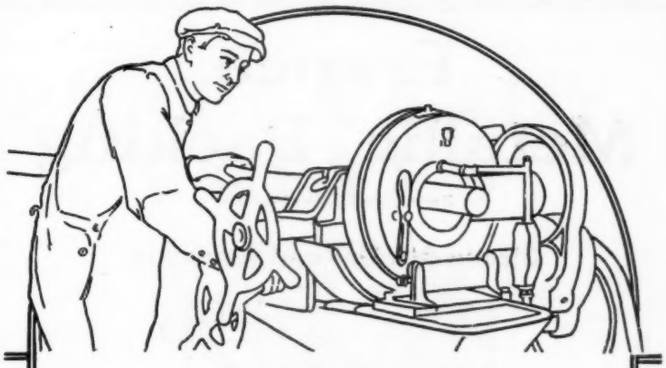

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It's easy to thread the worst scaled section of any line you are reclaiming in the quick release, adjustable die-head of an Oster Pipe-Threading Machine.

It's adjustable dies can quickly be fitted to cut clean, leak-proof threads on even the most heavily corroded pipe.

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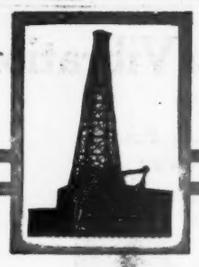


Late News from the Fields

OKLAHOMA FIELDS

The Humble Oil & Refining Co. has an interesting wildcat showing in No. 1 Sellers, C SW SW SE, Section 28-1s-3w, Carter County, Oklahoma, from sand at 3,108-65 feet. The hole filled 2,500 feet with oil.

In Greenwood County, Kansas, the Pulaski Oil Co.'s No. 3 Oliver, SE cor. NW SE NE, Section 8-23-11, was drilled to a total depth of 1,946 feet and then plugged back to 1,937 feet. Sand from 1,895 to 1,937 feet was shot with 140 quarts and the well swabbed 375 bbls. in the first 24 hours. N. F. Clark's No. 1 Town Lot, C E½ NW SE, Section 8-28-11, is a 1,500,000-foot gas well from sand at 1,902-07 feet. N. F. Clark has a 5-bbl. well in No. 3 Davis, SW cor. SE NE, Section 8-28-11, at 1,230-35 feet. Polhamus and others drilled a failure in No. 1 Halverson, NE cor. SW SE NE, Section 26-25-9, at 2,315 feet. Orr and others' No. 1 Baughman, SW cor. SE, Section 27-29-10, Elk County, is good for 10 bbls. from sand at 1,360-67 feet.

Rogers & Brown have a rig up for No. 2 Leedy, CNL SE NW, Section 31-22-10, Greenwood County and the White Eagle Oil & Refining Co. has a rig on the ground for No. 1 Edwards, SW cor. NE, Section 13-23-10.

The Meridian Oil & Gas Co.'s No. 1 Wharton, NW cor. SE NW SW, Section 12-29-12, Elk County, Kansas, is good for 1,000 000 feet of gas at 1,555-67 feet.

Sharpless & Martin abandoned as dry their No. 1 Martin, NE cor. NW NW, Section 14-20-12, Greenwood County, at 1,965 feet.

WYOMING-MONTANA

CASPER, Wyo., Oct. 14.—The most important report from the fields the past week is that of the Ohio Oil Co. in the Rex Lake structure which lies about 22 miles west of Laramie in Albany County. This strike is on Section 26-16-77 and the Muddy or Dakota sand was found at 3,715 feet and the hole started to fill with oil. After running part of a screw the bailer was dropped and a fishing job resulted that is still in progress.

The well is making some oil, although the hole is caving badly. This oil resembles the Rock River oil very much; it is a paraffin base and there is some indecision over the sand it is coming from. In the Rock River Field, which is only a few miles from the Rex Lake well, the Ohio is taking production from both the Muddy and the Dakota formations and authorities are in doubt as to which sand the new well has found. From the reports it would seem that a close correlation would place the sand as the Muddy. The well is on the ranch of L. E. Coughlin and should a field be developed, the production will likely be pipe lined to a connection with the Illinois Pipe Line Co. that connects the Rock River Field with the Laramie refinery of the Standard of Indiana.

Near Rex Lake Dome, the Utah Oil & Refining Co. has definitely abandoned the deep test it was drilling on Cooper Cove Dome. This is one of the deepest holes in southern Wyoming and the bottom is reported as 4,500 feet without reaching the Muddy or Dakota sands.

None of the companies completed any wells in Salt Creek the past week because of the floods of two weeks ago, which held up the field work. Shipments by pipe lines have also dropped off heavily as the pumping stations were shut down to clean up after the flood and only temporary power units sent what crude they could handle through.

Mutual to Drill

The Musselshell Oil Co., operating in the Cat Creek Field, has entered into a contract with the Mutual Oil Co. to have that firm drill its wells and develop its leases in the field. The contract gives the Mutual a 50-50 working interest in 120 acres of land in the field with one well that showed for a good producer in the second sand but later was shut off by a cavey hole that has not been straightened out. The Mutual will proceed at once to clean out the well and put it to producing.

The Illinois Pipe Line Co. has ordered its line from the Sunburst Field to the town of that name to stop receiving crude from all leases for shipment because of disability to obtain tankers to transport the crude. The difficulty is expected to be cleared up in a few days.

Pipe Line Runs

Pipe line runs for the past week show the effect of flood conditions heavily. The total is only 85,130 bbls. as against 135,580 bbls. for the previous week.

Salt Creek	51,000
Teapot	4,500
Big Muddy	3,800
Lance Creek	450
Pilot Butte	85
Lander	365
Lost Soldier	5,000
Rock River	7,800
Grass Creek	4,700
Hamilton Dome	500
Elk Basin	1,915
Notches	30
Greybull	175
Osage	890
Ferris	115
Cat Creek	5,225
Sunburst	1,780
Miscellaneous	600
Total	85,130

CENTRAL WEST

FINDLAY, Ohio, Oct. 16.—A dozen wells are reported completed in the old Lima Field of northwestern Ohio. Four were on the wildcat order and mean extensions to the old producing area.

In Section 22, Middleton Township, Wood County, Hugh Stewart drilled a test on his own farm, in the southeast quarter of the section, that shows a volume of around 500,000 feet at 1,248 feet. The well is 1,600 feet from the south line and 600 feet from the west line of the farm. In Washington Township, same county, the Dunbridge Oil Co. drilled in a 5-bbl. pumper on the southwest corner of the O. Cummings farm, Section 32, at 1,596 feet, and a short distance in advance of production in the Haskins Field. Hulse & Kuntz, Cleveland, Ohio operators, who are doing considerable testing around the edges of the old Wood County development, have drilled in a 25-bbl. pumper on the H. Goodenough, Section 34, Plain Township, and on the western edge of the field, which will naturally start some further testing out in that area during the spring. The oil was found at 1,552 feet.

In Liberty Township, Wood County, A. F. Stockwell has drilled in his No. 4 on the Anna Phillips farm, Section 3, and got a dry hole at 1,300 feet. In Henry Township, L. D. Langmade's No. 3 on the Paul Mayville, Section 23, in Lawrence Mills, produced 35 bbls. at 1,435 feet. In Plain Township, R. C. Shuler and others' No. 4 on the W. C. Blystone, Section 35, is a salt water pumper at 1,728 feet. This well is on the west edge of the sucker-rod belt, in what is known as the trough or syncline of the well known structure extending from east of Findlay through Wood County to the Waterville Field in Lucas County.

In Allen Township, Hancock County, the Overholt Oil Co.'s test on the H. Overholt, Section 7, pumped 25 bbls. Top of sand was found at 1,129 feet and drilled 250 feet in to a total depth of 1,379 feet.

In Bath Township, Allen County, A. A. Peavey and others' No. 5 E. W. Prowant, Section 1, pumped 15 bbls. Top of sand was struck at 1,315 feet and drilled 35 feet in the Trenton. In Spencer Township, same county, the Indian Oil Co.'s No. 3 Mathias Etgen, Section 15, pumped 50 bbls.

In Scott Township, Sandusky County, the Adams Oil and Gas Co.'s No. 11 on the Samuel Sprout, better known as the Isaac Vandersoll farm, Section 36, pumped 7 bbls. at 1,218 feet.

In York Township, Van Wert County, Ziegen & Pugh's No. 3 Margaret Hiller, Section 3, pumped 3 bbls.

In Van Buren Township, Shelby County, far south of the old Lima Field, the Van Buren Oil Co.'s test on the Paul Hagermyer, Section 18, was drilled in and put on the pump and made but 1 bbl.

MEXICAN FIELDS

TAMPICO, Mex., Oct. 12.—Huasteca Petroleum Co., (Mexican Petroleum) scored a good well in its No. 34 Cerro Azul, which is completed with a rating of 50,000 bbls. The drill tapped the pay at a sub-sea level of 1,384 feet, or only 24 feet deeper than its famous No. 4 in the same sector. The No. 34 is located, say 1 kolimeter south and a little west, of No. 4 Cerro Azul, the new well being no great distance from the Juan Felipe boundary. Another good South Fields completion during the week is the Mexican Eagle Oil Co.'s No. 28 Los Naranjos, Lot 125 Amatlan, which is conservatively rated at 10,000 bbls. at a sub-sea level of 1,598 feet. In the Alamo sector, south of the Tuxpan River, Penn Mex Fuel Co., drilled its No. 21 Alamo some 9 feet deeper and increased it from a head well of say 2,500 bbls. to some 10,000 bbls. The revised sub-sea level of this well is 2,096 feet.

There were no completions worth while in the Northern fields during the past few days.

It has been raining hard and steadily throughout the Tampico embayment during the past 36 hours, with no signs of any abatement. The Panuco River, already bank full, is rising. Automobiles and trucks in service in the fields can be retired now for repairs. Heavy hauling generally will be greatly curtailed, if not stopped altogether for the time being, without regard to whether the motor power is mule or internal combustion engine.

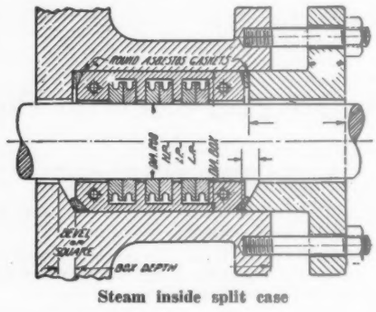
POINT ISABEL OIL RATE

AUSTIN, Texas, Oct. 15.—Crude petroleum freight rate of $15 per tank car from Brownsville to the wharf of the new deep-water port at Point Isabel, was fixed by railroad commission Saturday.

France Metallic Packing

For all conditions of service

Steam, Air, Gas and Ammonia



Steam inside split case

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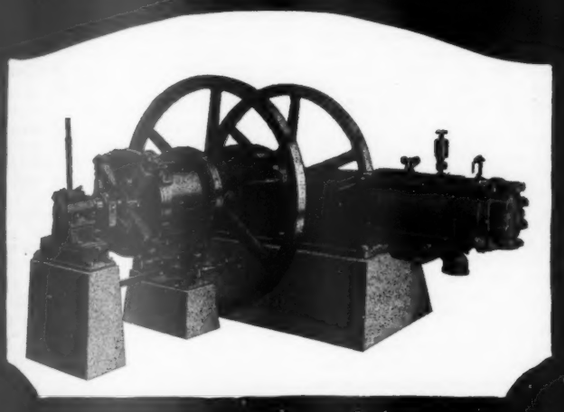

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There is no better clutch made for oil field service than the FRANKLIN type "S".

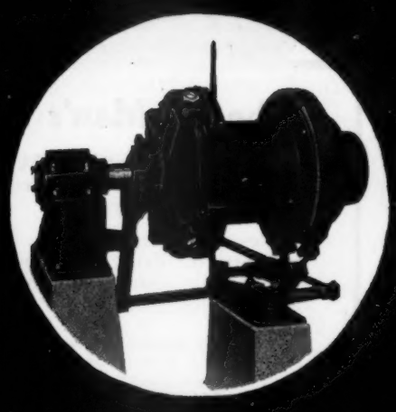

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Fig. 600 Inside Screw

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Their simplicity of design, compactness, high grade materials, renewability of all parts and the facility with which they may be assembled and disassembled for cleaning and repair, insure the maximum durability, serviceability and economy in maintenance, warranting their adoption for any service,—steam, water, gas, oil, etc.—where the pressure does not exceed 100 pounds.

Procurable in the Iron Body Bronze Mounted Pattern, or for handling liquids which attack bronze alloys, in the All Iron Pattern, sizes ½ to 6 inches inclusive.

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Fig. 639 Quick Operating

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N. LOUISIANA-ARKANSAS

(Continued from Page 46)

Oil Co. is down 1,675 feet in No. 2 Hardy, Section 4-16-15, and is arranging to bail No. 1 Griffin at 2,000 feet, Section 33-15-15.

Light Oil District

In the light oil district Johnson and others' No. 1 Fincher, stands 1,800 feet in oil with 33 feet of sand at 2,265 feet, Section 29-15-16. In this section the Magnolia Production Co. is drilling through liner at 2,110 feet in No. 1 Shirley, Berg.

The Sure Oil Co. set 15½-inch casing at 60 feet in No. 1 fee, Section 30-15-16. The Transcontinental Oil Co. is arranging to drill No. 1 Milner deeper from 2,457 feet, Section 20-15-16.

Stephens Field

One well was put on the beam in the Ouachita County area last week, the Ohio Oil Co.'s No. 6 Tidwell, Section 29-15-19, with 10 bbls. production at 2,165 feet from 22 feet of broken formation.

The Arkansas Invincible Oil Corp. is drilling shale at 1,430 feet in No. 2 Wesley, Section 15-19-11. The Atlantic Oil Production Co. has made location for two wells on the Webfer lease, Section 30-15-19. Leeper, trustee, has set 6-inch casing at 2,080 feet in No. 1 Wesson, Section 23-15-19.

The Mutual Oil Co. is waiting on standard rig to pump No. 1 Hamilton at 2,140 feet, Section 19-15-19 and has location made for No. 4. The Ohio Oil Co. is drilling shale at 1,500 feet in No. 1 Grayson, Section 29-15-9. The Shaffer Oil Co. is waiting on standard rig to pump No. E-4 Brown, Section 18-15-19. The Standard Oil Co. has set 6-inch casing at 2,030 feet in No. 1 L. Jones, Section 30-15-19.

Columbia County

Four wells were put on the beam in Columbia County last week and one failure was recorded. Hude & Aarens put No. 4 Brown on the beam with 35 bbls. production at 2,090 feet, Section 13-15-20. In Section 23-15-20 Wingfield put No. 1 Milner on the beam with 30 bbls. production at 2,165 feet and No. 2 with 35 bbls. production at 2,165 feet.

The Ohio Oil Co. tested No. 1 J. W. Witt dry and abandoned the well at 2,762 feet, Section 35-16-21.

The Standard Oil Co. completed No. 8 Milner, Section 24-15-20, pumping 35 bbls. of oil at 2,155 feet.

The Atlantic Oil Producing Co. is drilling at 1,025 feet in No. 3 Milner, Section 24-15-20. E. T. Brown and others are down 2,767 feet in No. 1 Robinson, Section 23-18-23, 13 miles southwest of Magnolia.

Dowby and others shut down No. 1 Ray & Fullenweider at 2,190 feet, Section 12-17-22. Haskell and others are drilling at 1,460 feet in No. 7 Webfer, and 1,000 feet in No. 8, Section 24-15-20. Hude and Aarens have set 6-inch casing at 1,996 feet in No. 4 Adkins, Section 13-15-20.

The Magnolia Petroleum Co. is waiting on standard rig to pump No. 3 Webfer at 2,100 feet, Section 26-15-20 and is rigging up No. 2 Hammond, Section 25-15-20.

The Shaffer Oil & Refining Co. is testing No. E-4 Milner at 2,097 feet, Section 24-15-20. Turley and Tate are drilling at 1,550 feet in No. 3 Milner, same section.

Nevada County

There were no completions made in Nevada County last week and very little drilling of interest is under way. Ames and others have set 6-inch casing at 1,142 feet in No. 4 Waters, Section 10-14-21.

The Dixie Oil Co. is waiting on standard rig to pump No. 1 P. R. Womack, at 1,200 feet. Section 10-14-21. Millie Dee, trustee, is down 2,550 feet in No. 1 Stones, Section 36-13-20. The Prescott Oil Co. is drilling shale at 1,015 feet in No. 1 Henry, Section 10-12-20. Smitherman and McDonald have set 8¼-inch casing at 1,137 feet in No. 2 Womack, Section 10-14-21. The Transcontinental Oil Co. is rigging up No. 1 Blakely, Section 14-13-20.

One small producer and two failures were reported from the Bellevue Field. The Louisiana Oil Refining Corp. put No. D-25 fee on the beam, Section 15-19-11, pumping 14 bbls. of fluid, 14 per cent water and 3 per cent b. s., at 375 feet.

Bliss & Weatherbee tested No. B-3 Bliss & Weatherbee dry at 440 feet and abandoned the well, Section 15-19-11. In the same section the Humble Oil & Refining Corp. tested salt water at 458 feet and abandoned No. 16 Roy, Bliss & Weatherbee at 500 feet. Peps and others tested salt water in No. 1 Catlet at 301 feet and are arranging to abandon the well, Section 27-19-11.

The Standard Oil Co. is drilling No. 6 Bliss & Weatherbee at 365 feet with a little showing of oil, Section 10-19-11. Webb and others are down 290 feet in No. 1 Catlet, Section 27-19-11. Welburn and Deputy are down 260 feet in No. 1 McVay, Section 9-19-11.

Caddo Parish

Two wells were put on the beam in Caddo Parish last week. The Fortuna Oil Co.'s No. 19 Raines, Section 22-21-15 in the Pine Island district with an initial production of 10 bbls. at 1,610 feet in the chalk rock and the Muslow Oil Co.'s No. 1 fee, in the same territory, Section 31-21-15, with 45 bbls. initial production at 1,590 feet.

The Dixie Oil Co. is down 2,680 feet in No. 53 Robertshaw, Section 12-21-15, Pine Island district, and is boiling to test No. 55, at 1,698 feet, Section 13-21-15, with rig up for No. 56 same section.

The Fortuna Oil Co. set 6-inch casing at 1,355 feet in No. 19 Robertshaw, Section 23-21-15. The Humble Oil & Refining Co. is drilling at 990 feet in No. 1 Youree Randolph, Section 24-20-15. The Louisiana-Texas Community Oil Co.'s well on the French lease is standing 1,600 feet in oil at 2,883 feet with 300 feet of salt water on the bottom. The oil tests 31 gravity. The well is located in Section 34-23-16, north of Shreveport.

The Vitek Oil & Refining Co. is drilling at 2,220 feet in No. 1 Alexandria, Section 9-20-15.

Claiborne Parish

No wells were completed in this parish and very little activity is under way. The El Dorado Chief Oil Co. is drilling at 3,520 feet in No. 1 McKenzie, Section 35-22-7, 4 miles north of Homer.

The Louisiana Oil Refining Corp. is down 2,540 feet in No. 3 J. L. Garrett, Section 24-23-8, in the proven area. The Standard Oil Co. is drilling at 2,000 feet in No. 3 Shaw Palmer, Section 30-21-7. The Ohio Oil Co. is running core barrel at 2,838 feet in No. 1 Teague, Section 10-23-7. The Triangle Drilling Co. is down 2,075 feet in No. 1 Reinach, Section 17-22-5.

Red River Parish

Caldwell and associates are drilling at 995 feet in No. 1 Welch, Section 7-14-10. The Fortuna Oil Co. is down 2,630 feet in No. 58 Pugh, Section 7-12-10. The United States Drilling Co. tested salt water at 2,810 feet in No. 3 Fletcher and is arranging to plug back 1,110 feet and make a gas well, Section 10-12-10.

De Soto Parish

Phillips and Garrett are drilling at 2,940 feet in No. 1 Roscoe, Section 35-13-14. Pollock and others are waiting 6-inch casing at 2,400 feet in No. 1 Jenkins, Section 25-13-13. Snell & Kennebrew are down 2,550 feet in No. 1 Tompkies, Section 30-14-13. The T. & P. Coal & Oil Co. is drilling at 1,450 feet in No. 1 Roscoe, Section 22-12-13.

Louisiana Wildcats

Bienville Parish: The Ohio Oil Co. is running core barrel in their deep test on the Randell lease in Section 12-16-7, now down 2,978 feet. In Section 21-17-8, the Standard Oil Co. is drilling at 2,010 feet in No. 1 Leona Scott.

Bossier Parish: The Triangle Drilling Co. has abandoned its deep test on the Bollinger lease in Section 18-23-11, getting salt water at 2,864 feet. Slaten & Walker have a fishing job at 720 feet

in No. 3 Bolinger, Section 30-23-12, and Zinc and others are standing at 260 feet in No. 1 McGuffin, Section 4-18-11, repairing rig.

La Salla Parish: The Urania Petroleum Co. is setting 8-inch casing at 1,460 feet in No. 2 Urania. Section 20-10-2e.

Lincoln Parish: The Four Creek Oil Co. is having trouble with a fresh water flow at 360 feet in its test on the Colvin lease in Section 27-20-3w.

Morehouse Parish: Ladell and others completed No. 15 fee, in Section 23-20-5e, making 2,000,000 feet of gas at 2,280 feet.

The Consolidated Oil Co. is drilling at 2,020 feet in No. 1 Oden, Section 29-20-5e; Feazel and others are drilling at 1,400 feet in No. 2 Plemmons, Section 22-20-5, and Ladell and others are drilling at 2,070 feet in No. 13 fee, Section 2-19-5e, and at 2,195 feet in No. 14 fee, Section 27-20-5e.

Morris, trustee, has a fishing job at 2,150 feet in No. 1 Snyder, Section 34-20-5e, is drilling at 200 feet in No. 1 Plemmons, Section 20-20-5e, and has location made for No. 1 Rogers, in Section 15-20-5e.

The Southern Carbon Co. is drilling at 1,584 feet in No. 10 Spyker, Section 29-21-5e and has made a location for No. 11 Spyker in Section 17-20-5e.

Ouachita Parish

Seven gas wells were completed in the Monroe gas field in Ouachita Parish during the week, their aggregate volume amounting to 73,000,000 feet per day.

Florsheim and others completed No. 1 Richie in Section 32-19-5, making 21,000,000 feet at 2,210 feet.

Hosterman and others completed No. 1 Stubbs in Section 28-19-5, making 10,000,000 feet at 2,256 feet.

The Maury Drilling Co.'s No. 1 McEwen in Section 29-19-4, made 9,000,000 feet at 2,189 feet.

The Monroe Louisiana Carbon Co. completed No. 1 Hancock in Section 28-19-5, making 3,000,000 feet at 2,219 feet.

Palmer, trustee's No. 1 Morgan, in Section 21-19-5, made 11,000,000 feet of gas at 2,240 feet.

The Texas Co.'s No. 2 O'Neil in Section 33-19-4, made 6,000,000 feet of gas at 2,214 feet.

The United Gas & Petroleum Co. completed No. 1 Daughtie in Section 28-19-5, making 13,000,000 feet of gas at 2,213 feet.

Boone, trustee, is reaming at 2,175 feet in No. 1 Lieber, Section 4-19-5e; the Consolidated Carbon Co. is drilling at 1,635 feet in No. 1 Wilson, Section 8-19-5e and the Cosmos Carbon Co. is drilling at 1,635 feet in No. 1 Wilson, Section 20-19-5e.

The Ouachita Natural Gas Co. has set 8-inch casing at 885 feet in No. 2 Lieber, Section 5-19-4e; Southern Carbon Co. set 12½-inch casing at 200 feet in No. 24 fee, Section 27-19-5e, and The Texas Co. set 12½-inch casing at 170 feet in No. 1 Winchit, Section 31-19-5e, and has derrick up for No. 3 Gibbs in Section 29-19-5e.

The Standard Carbon Co. is reaming at 2,200 feet in No. 1 Puckett, Section 16-19-5e; United Oil & Gas Prod. Co. is drilling at 1,950 feet in No. 2 Balkum, Section 3-19-5e; Ziegen and others set 6-inch casing at 2,165 feet in No. 3 Muench, Section 28-19-5e; and Ziegen & Clark made a location for No. 1 Winchit in Section 32-19-5e.

Union Parish

Interest in Union Parish wildcat development is centered mainly on the outcome of the Clark well, drilled by the Union Parish Drilling Co. in Section 17-23-1e, in which 6-inch casing has been set at 2,155 feet, and the Love Bros.' test on the Security Trust lease in Section 12-23-1w, now setting liner to test at 2,228 feet. Both wells are being watched with intense interest.

Another test has been started in this vicinity by Collins & Woodley, No. 1 Newson, in Section 23-23-1e, now drilling at 200 feet, and Davidson & Palmer have set 10-inch casing at 85 feet in a test on the Frost Johnson Lumber Co. land in Section 12-23-1e. The Empire Gas & Fuel Co. has derrick up for No. 1 Hamilton in Section 30-19-1e.

Webster Parish: The Oil Field Gas Co. is drilling at 1,650 feet in No. 1 Pardee, Section 27-23-10, and has set 8-inch casing at 1,010 feet in No. 1 S. J. Merritt, Section 14-21-10. The Texas Co. is down 3,200 feet in the deep test on the J. M. Merritt lease in Section 5-22-10.

Arkansas Wildcats

Calhoun County: The Checkerboard Oil Corp. has abandoned its test on the Abbott lease in Section 20-14-14 at 2,325 feet. Salt water was encountered at 2,178 feet and deeper drilling failed to produce anything encouraging. Harris & Bickle has a fishing job at 500 feet in No. 1 Freeman Smith Lumber Co., Section 26-16-13.

Clark County: The American Drilling Co. is drilling at 500 feet in No. 1 Wilson, Section 15-8-22.

Drew County: Graves and others are drilling at 1,350 feet in No. 1 Karns, Section 10-13-6 and the Monticello Ridge Oil Co. at 1,615 feet in No. 1 Wilson. Section 10-12-7.

LaFayette County: The Kensaw Petroleum Co. is bailing No. 1 Red River Land Co. at 2,665 feet, Section 34-19-24, 6 miles southeast of Bradley, 2 miles north of the Bossier Parish line and directly north of the Lloyd Harris well.

PROGRESS IN DEVELOPING SALT CREEK FIELD

(Continued from Page 25)

dition the gas plant paid out $82,464 and the pipe line department paid out $40,237 for the month.

At the Home Camp or Salt Creek town, the Midwest provides a city drug store such as would be a credit to any city a theater, a large rest pavillion and dance hall, commissary that places its goods to the field workers at cost with the added percentage for handling, hotel accommodations for travelers, boarding and rooming houses for the single workers and, in fact, all the little accommodations that go to make life easy and the workers contented.

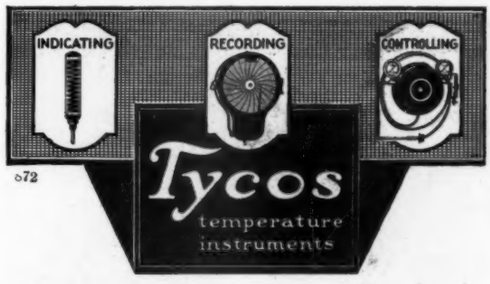
Also at Salt Creek town are located all the supply stocks for the field, lumber yards, pipe yards and a large pipe shop, the largest machine shop in the State, reclamation shop where junked material is worked up and salvaged, boiler shop, garages and a large drilling and fishing tool shop.

The commissary stock alone is around $400,000 and the turn over is $1,500,000 every three months or about $6,000,000 per year. The stock of material on hand at Salt Creek will easily run over $1,000,000, carried by the Midwest alone. Add to this what the numerous other firms carry in that field and a stupendous amount of money invested is had. All the other firms combined will more than equal the Midwest investment.

Protect Station's Name

A recent feature that is likely to become a cause of considerable friction is the action of the new railroad in taking over the name of Salt Creek for the name of its station at the south part of the operation and well outside the escarpment rim that marks the limits of the field today. The North & South Railway has incorporated this station site as Salt Creek and a letter was received recently by the postmaster at Salt Creek to decide upon a new name for that town as the present name would be given to the station at the south end of the field, about 16 miles away.

Residents of Salt Creek town are up in arms against this move. It is claimed that there is now at Snyder's ranch, the new station site, less than 100 people who will receive mail there and that Salt Creek town is a second class postoffice with more than 3,000 people served. The Government pays a salary of $1,300 per year to the postmaster at Salt Creek town and to arbitrarily change the name of this postoffice at the request of a railroad and entail much confusion and retarding of mail matter thereby to the inhabitants of Salt Creek town, appears to many residents to be an unwarranted intrusion of their rights.



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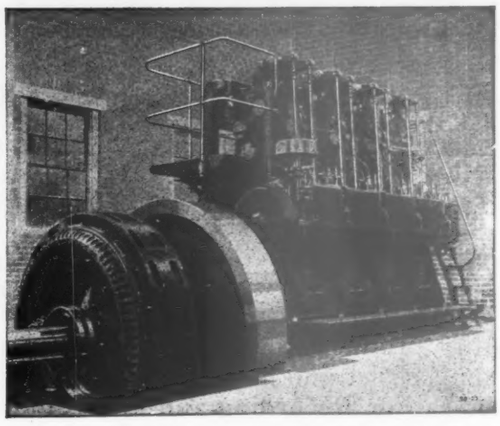

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Dr. Cook, on Trial In Fort Worth Case, Says All Mistake

FORT WORTH, Tex., Oct. 16.—Presentation of evidence by the Government in the trial in federal court here of Dr. Frederick A. Cook, Arctic explorer, and his codefendants, charged with using the United States mails to defraud, began Tuesday afternoon when C. B. Whitmer, real estate dealer, of Freemont, Iowa, took the witness stand as the first of more than 100 expected to be called for the prosecution.

Mr. Whitmer's testimony concerned letters which he testified he received through the mails from the Burke Hoyt Oil Co., signed by J. S. Rooks, a codefendant, and from the Petroleum Producers Association, signed by Doctor Cook. The letters urged the stockholders in the Burke Hoyt Co. to transfer their stock into Doctor Cook's association, by paying 25 per cent of the stock value in cash. One of the letters written by Doctor Cook said "petroleum is the king of industry" and "our success is as certain as human progress."

Attorneys representing S. E. J. Cox addressed the jury denying that Cox had been involved in the affairs of the Petroleum Producers Association.

Postal Inspector John Swenson, one of the chief witnesses for the government led the invest gation into the affairs of the Petroleum Producers Association, which preceded the presentation of facts to the grand jury, resulting in the indictment being returned, naming Cook and 21 others, seven of whom pleaded guilty Monday. The seven who entered their pleas will be used as witnesses by the government, it was announced by United States Attorney Zweifel.

Mistake, Cook Says

"It is all a horrible mistake," Doctor Cook said. Suddenly grown old, the explorer-promoter moves about with unsteady step, his head nodding continuously with slight twitching bordering on palsy.

Former United States Senator Joseph Weldon Bailey, leading attorney of the defense, says:

"The defense will show that Doctor Cook formed the Petroleum Producers Association to take over a few rundown companies, rebuild them and put them on an operating business. Cook is not guilty of any fraudulent scheme of oil promotion as the government charges."

He added that the companies which were taken in were companies which had been organiezd when oil was selling at $3 a barrel, but thrown almost into the discard when the big slump in the oil business came and oil dropped to $1 a barrel.

"Cook would have made a success of this enterprise had not the government came along and interfered when it did," Bailey asserted.

THE SMITH SEPARATOR

The wording of an item in The Oil and Gas Journal of October 13 may have given the impression that the Smith oil and gas separator, manufactured by the Smith Separator Co. of Tulsa, was the product of another company. On the contrary, the Smith separator is one of the oldest on the market, manufactured in Tulsa, and sold wherever oil is produced.

BUYS GILLESPIE PROPERTIES

PITTSBURGH, Pa., Oct. 15.—Oil properties of R. G. Gillespie, of Pittsburgh, Pa., have just been acquired by the Reno Oil Co. The amount of money involved is not revealed, but the entire Gillespie holdings in West Virginia and Ohio were sold. The properties are located in Gilmer and Ritchie Counties, West Virginia; Monroe County, Ohio, and Allegheny and Washington Counties, Pennsylvania.

ETHYL FLUID TO TAKE KNOCK OUT OF ENGINE

In his address before the Mid-West section of the Society of Automotive Engineers in Chicago October 12, C. F. Kettering, president of the General Motors Chemical Co., announced that a contract between that company and the Standard Oil Co. of Indiana had been entered into for the distribution of ethyl fluid.

Ethyl fluid is a new additional agent for gasoline developed by General Motors Research Corp. It has, it is reported, the effect of increasing engine efficiency and of taking the knock out of an engine, no matter under what conditions or load an automobile is driven. It is the result of several years' research and test at the laboratories of the General Motors Research Corp. in Dayton, and has been placed on sale at a few stations in Dayton and in Cincinnati, Ohio.

Gasoline treated with ethyl fluid has a characteristic light wine color, which distinguishes it from other automobile fuels.

Distribution by the Standard Oil Co. of Indiana will cover the States of Michigan, South Dakota and North Dakota as quickly as installation can be made. This installation will be started in Indiana and carried through Illinois, into Missouri and Kansas. The southern part of the distributing territory is being equipped this winter and the northern part will be equipped as early as possible in the spring, in order that motorists may be supplied when the 1924 motoring season opens. First installations will be made in Standard Oil Co. of Indiana service stations. It is believed that all their stations will be ready to supply the treated fuel by July 1, 1924.

There are 968 towns and cities in the 10 States mentioned where one or more service stations are operated. Bulk distributing stations exist in 4,088 towns. The service stations now being operated by Standard Oil Co. of Indiana total 1,851 and these cover the more important cities.

Stored Osage Oil Can Be Put on Sale Secretary Work Says

WASHINGTON, Oct. 15.—Accumulated stores of oil, representing the royalty interest of the Osage Indians, can be sold, Secretary Work ruled today, at the highest posted market price by operators holding leases of oil lands on the Osage reservation in Oklahoma. The stored oil, representing the operators' interest, need not be disposed of at the same time, he added.

The secretary held that under terms which obligate the lessees to pay one-sixth of the gross proceeds of the sale of oil he has no authority without the consent of the Osage tribe to permit the deduction of a storage charge of 2 cents per barrel per month for the time the oil was in storage.

Interest of the Indians in accumulated stocks was estimated at 500,000 bbls., which is being increased at the rate of 6,000 bbls. a day in royalty. The Osage Indians' council recently requested that the Indians' share be sold if possible at the present market price, despite the unfavorable market situation.

BRITISH INTERESTS IN RUMANIA

"Of all oil fields in the world in which British capital is now taking a prominent part, there is no doubt that Rumania stands foremost," says the London Petroleum Times. "For the past quarter of a century, since the potentialities of Rumanian fields came to be appreciated, foreign capital has looked with longing eyes upon the prolific regions of that country, and it is no secret that just when the great European War cast its shadow over the world, the common enemy had become firmly established in Rumania, and was, in fact, drawing an immense proportion of its oil supplies into Germany."

Teapot Dome Probe Probably Inactive For Several Days

WASHINGTON, D. C., Oct. 16.—The Senatorial Committee to investigate the advisability of the development of the Teapot Dome of Wyoming, which was to have opened the investigation yesterday, will not become active for several days. It is thought the entire investigation will be devoted largely to conflicting opinions of geologists as to whether the oil could have been conserved in the ground as well as it will be cared for in tanks.

Developments on the Teapot Dome are of especial interest at this time. Failure of the field to come up to expectations has checked the agitation against the awarding of the contract without competitive bidding.

Though the contract called for the completion of 20 wells during the first period, the Mammoth Oil Co. has completed 58 wells, with results as follows: 20 flowing oil wells, 23 pumping oil wells, 10 gas producers, two water wells, two absolutely dry holes, and one water well, which is shut down and of undetermined status. To date, the field has produced and shipped 657,000 bbls. of oil, daily production at this time averaging about 4,500 bbls. This will no doubt be increased soon as a number of new wells have recently been completed and will be connected with the pipe line.

The oil is being run to the tank farm at Clayton, where it is stored pending the completion of the line to Kansas. At present there are 20 strings of tools at work in the field and several rigs up which have not been put in operation, making in all 81 wells begun in the field since the Mammoth started to put the contract in operation.

An odd development in the Teapot is the discovery of gas in large quantities in the southern part. There are absolutely no gas wells in the Salt Creek Field. The Midwest absorption plant in the Salt Creek Field is operated on gas that comes with the oil from the wells. The third, or Lakota, sand is still an unknown factor in the Teapot Field and geologists expect it to prove more prolific than the Wall Creek. Four wells have been started with the Lakota for an objective, but all have found good production either in shale or a shallower sand and drilling has been discontinued to allow these to produce. One of these wells, on the northeast corner of Section 10-38-78, is making 200 bbls. daily from the shale. A well now drilling on Section 28 will be carried to the Lakota unless exceptionally good production is found at a shallow depth.

Department of the Interior experts have completed a report on the Teapot Dome for use of the Senate Public Lands Committee. Senator Smoot of Utah is chairman of this committee.

Findings have not been made public, but it is understood the report states there was drainage from Teapot Dome to the adjoining Salt Creek Field. Such a finding is highly significant.

Former Secretary of the Interior Fall contended that this drainage existed and that it was one of the principal reasons for making the lease instead of continuing to hold Teapot Dome as a naval reserve. Those who attacked Mr. Fall's action declared that the danger of drainage was very slight.

If it is finally established that there was drainage, the investigation may center on details of the government's leasing policy with the contention that Mr. Fall went contrary to this policy in making the lease that he did.

TANK CARS' STORAGE AT DEMURRAGE COST

Arguments on the question whether the multiple-unit tank car is entitled to treatment at the hands of railroads as a tank car were made in No. 13895, Mathieson Alkali Works and others vs. Baltimore & Ohio and others, by E. E. Clark, for complainants, Henry Howard, for Manufacturing Chemists Association, and Parker McCollester, for the railroads. Mr. McCollester said the railroads dreaded the effect of a decision that a multiple-unit car was entitled to the privileges of a single-unit car when they contemplated what might be done by the oil industry, in the use of multiple-tank cars from which units could be removed for storage.

As part of a colloquy between himself and Mr. Clark, about the use of petroleum tank cars for storage purposes at no cost other than demurrage, Mr. McCollester said consignees, not owners of tank cars, were evading payment of demurrage by a device, namely, that of leasing the cars from owners. He said freedom from demurrage, under the rules, existed only while private tank cars were on the tracks of their owners, or lessees. He said the abuse had become so flagrant that the railroads were considering the advisability of changing the rules. His first allegation was that storage in tank cars would be obtained at cost of demurrage.

PENN-MEX TO START TWO WELLS ON TRACT

PITTSBURGH, Pa., Oct. 15.—The Penn-Mex Fuel Co., operating in the south fields of Mexico, is encouraged to start two more wells on its big tract, No. 21 having come in a gusher two weeks ago. It is thought the structure on which it is located extends to the south and in that direction the company contemplates starting two wells. Application has been made to the Mexican Government for the permits and as soon as they are granted work is to begin.

No. 21 is holding up very creditably. On last Monday the Penn-Mex Co. began shipping crude to the refinery at Tampico, the first in more than a year. It has been placing its production in storage tanks in the field.

CALIFORNIA CRUDE OIL PRICES, 1920 TO 1923

A comparison of base prices paid per barrel for crude oil at the well in California, effective July 10, 1920; May 13, 1921; August 3, 1921; July 15, 1922; July 25, 1922; January 6, 1923; April 10, 1923, and October 9, 1923, follows.

	July 10, 1920	May 13, 1921	Aug. 3, 1921	July 15, 1922	July 25, 1922	Jan. 6, 1923	Apr. 10, 1923	Oct. 9, 1923
14° to and including 17.9° gravity	$1.60	$1.35	$1.10	$ .85	$ .60	$ .60	$ .60	$ .60
18° to and including 18.9° gravity	1.61	1.36	1.11	.85	.60	.60	.60	.60
19° to and including 19.9° gravity	1.63	1.38	1.13	.85	.60	.60	.60	.60
21° to and including 20.9° gravity	1.66	1.41	1.16	.88	.63	.62	.61	.61
22° to and including 21.9° gravity	1.70	1.45	1.20	.92	.67	.65	.62	.62
23° to and including 22.9° gravity	1.76	1.50	1.25	.98	.73	.70	.65	.63
24° to and including 23.9° gravity	1.81	1.56	1.31	1.05	.80	.75	.68	.64
25° to and including 24.9° gravity	1.88	1.63	1.38	1.13	.88	.80	.71	.65
26° to and including 25.9° gravity	1.96	1.71	1.46	1.21	.96	.85	.74	.66
27° to and including 26.9° gravity	2.05	1.80	1.55	1.30	1.05	.90	.77	.67
28° to and including 27.9° gravity	2.15	1.90	1.65	1.40	1.15	.95	.80	.68
29° to and including 28.9° gravity	2.25	2.00	1.75	1.50	1.25	1.00	.83	.69
30° to and including 29.9° gravity	2.35	2.10	1.85	1.60	1.35	1.05	.86	.70
31° to and including 30.9° gravity	2.45	2.20	1.95	1.70	1.45	1.11	.89	.71
32° to and including 31.9° gravity	2.55	2.30	2.05	1.80	1.55	1.17	.92	.72
33° to and including 32.9° gravity	2.65	2.40	2.15	1.90	1.65	1.24	.95	.73
34° to and including 33.9° gravity	2.75	2.50	2.25	2.00	1.75	1.31	.98	.74
35° to and including 34.9° gravity	2.85	2.60	2.35	2.10	1.85	1.38	1.01	.75
35° gravity and above (per barrel)	2.95	2.70	2.45	2.20	1.95	1.45	1.04	.76

Note—Prices effective April 10, 1923, originally applied only to fields in Los Angeles and Orange Counties, and prices in the San Joaquin Valley Fields remained as of January 6, 1923. On August 1, however, the prices of April 10 were made effective in all California fields. Prices effective October 9 apply in all California fields.

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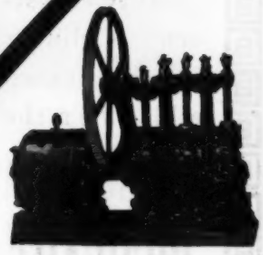

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Government Bureaus Exhibit Crude Tests And Lease Tankage

Three of the most important exhibits of The International Petroleum Exposition and Congress were those of the United States Bureau of Mines, Bureau of Domestic and Foreign Commerce and the Geological Survey. The efforts of these three important Government agencies, which for several years have given service to the oil industry, was devoted largely to showing past work and explaining to the visitors in what manner they can serve the individual operator, refiner or marketers of petroleum and its products.

One of the features of the Bureau of Mines exhibit consisted of the samples of crude oil from the fields of the entire world. The samples consisted of 70 foreign crudes, 35 Oklahoma crudes, 35 Texas crudes, 35 California crudes and 35 miscellaneous crudes. The contents of all these crudes based on laboratory tests were given. The bureau also had an exhibition of miniature tanks showing all the improved lease tankage. These tanks were exhibited in connection with the recent investigation the bureau has conducted in regard to evaporation losses in crude storage. The Hempel method of making distillation tests of crude oils was in continuous operation. A peg model of the Tonkawa Field (Okla.) showing the Tonkawa and lower Hoover sands proved an interesting feature to producers. C. R. Bopp, refining engineer of the Bureau of Mines station at Bartlesville, Okla., was in charge of the exhibit.

H. C. Morris, chief of the petroleum division, was in charge of the exhibit of the Bureau of Foreign and Domestic Commerce. He was assisted by Homer S. Fox, also of the petroleum division. They had a large number of the bureau's publications and also several maps and graphs showing market conditions.

The exhibit of the Geological Survey practically covered that department's field of activities of special interest to the petroleum industry. A large number of maps covering the entire world were shown together with pamphlets explaining recent surveys. Sand cuttings, fossils and other exhibits similar in nature were among the interesting features.

TEXAS AND VENEZUELA OIL FOR NEW YORKERS

NEW YORK, Oct. 15.—Plans for supplying crude oil on a huge scale to buildings in New York City for fuel purposes are being worked out by a group of international interests including some leading American, Canadian and Venezuelan oil men. Heretofore, the oil supplied for such purposes has been a fuel oil similar to bunker oil. It is a residue left after higher qualities of crude oil used for the manufacture of gasoline, lubricants, etc., has been removed.

The use of crude oil for fuel purposes for buildings in the metropolitan district will be revolutionary. The oil will come from fields of Texas and Venezuela. The plans, it is said by the New York Commercial, are already well under way. They are being worked out under direction of Yervant Maxudian. Two companies which he heads are to be embraced in the plan. One is Coastal Oil Fields, Inc., which is operating in the Gulf Coast fields of Texas, the other is Maxudian Petroleum Corp., formed last month to take over highly promising oil fields in Venezuela.

JOINS SALES FORCE

J. A. Halpine, formerly superintendent of the Kentucky district for the Arkansas Natural Gas Co., has joined the sales force of the Rig Equipment Co., Sand Springs, Okla. Mr. Halpine has been a resident of Findlay, Ohio, for a number of years, and has had considerable experience in all branches of the oil business.

MEXICAN OIL CLAIMS

WASHINGTON, Oct. 15.—Apparently most American oil claims on account of injuries done property in Mexico will be handled by the General Claims Commission which is to sit in Washington, for three years following the first meeting of that body. The conventions creating the General Claims Commission and the Special Claims Commission must be ratified by the Congress of Mexico and Senate of the United States. Each commission will consist of one man appointed by the President of the United States, one by the President of Mexico and a third to be agreed upon by the two, or, in the event of failure of such agreement, then the president of the Permanent Court of Arbitration at the Hague. The Special Claims Commission is to meet in Mexico City. The first mentioned body is to exist for three years and the other for five years. There is also a provision for the extension of these time limits.

EASTERN PIPE LINE REPORT FOR SEPTEMBER

Receipts of crude petroleum during the month of September from the wells by the pipe lines of the Eastern division, which make regular monthly reports of their runs, were 2,170,742 bbls. The daily average receipts aggregated 72,358 bbls. This is a loss of 213,465 bbls. in the total compared with the previous month and a decrease of 4,552 bbls. in the daily average. The daily average receipts were 6,154 bbls. less than they were during the month of September, 1922.

All of the pipe lines which are included in this report had decreases in their total receipts with the exception of the Paragon Development Co.

The receipts of crude oil from the Illinois Field during the month of September as reported by the Illinois Pipe Line Co., and the Tide Water Pipe Co., amounted to 542,562 bbls. The daily average was 18 085 bbls. This is a decrease of 52,186 bbls. in the total and 1,133 bbls. in the daily average. The total runs of crude oil in the Illinois Field were 53,042 bbls. smaller than they were in September, 1922. The September runs were divided by companies as follows. Illinois Pipe Line Co., 514.355 bbls.; Tide Water Pipe Co., 28,206 bbls.

Total deliveries by these two companies which operate in the Illinois Field during September were 305,925 bbls. Of this amount the Illinois Pipe Line Co. delivered 181,647 bbls. and the Tide Water Pipe Co. 124,278 bbls. The daily average of these shipments in September was 10 197 bbls. This is a decrease of 61,228 bbls. in the total and a loss of 1,647 bbls. in the daily average, when the figures are compared with those for August. The total is 101,409 bbls. less than the total for September, 1922.

The regular deliveries of crude oil by the Eastern lines during the month of September amounted to 4,017,973 bbls. and the daily average was 137,266 bbls. This is a decrease of 407,772 bbls. in the total and a decline of 5,500 bbls. in the daily average compared with the August figures. The daily average for September is 21,495 bbls. less than the daily average for September, 1922.

All of the pipe lines included in this report show decreases in their reports of deliveries except the National Transit Co., the Eureka Pipe Line Co., the Macksburg and Lima divisions of the Buckeye Pipe Line Co., the Northern Pipe Line Co., and the Pittsburgh Pipe Line Co.

The amount of crude oil held in storage by the pipe line companies which are included in this report at the close of September was 14,803,444 bbls., an increase of 32,905 bbls. This increase was smaller than the gains reported in crude stored during recent months. The total compares with a high mark of 17,009,28[illegible] bbls. at the close of February, 1922. It is, however, the greatest amount held in storage by these lines since November of last year.

There was a decrease of 38,125 bbls. in the amount of Pennsylvania crude in storage during September. Lima oil in storage increased 44,086 bbls. Kentucky oil stored by these pipe lines increased 20,095 bbls. Mid-Continent oil decreased 106,377 bbls. Illinois oil increased 113,227 bbls.

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DETAILED REPORT OF OPERATIONS OF EASTERN FIELDS DURING SEPTEMBER

EASTERN FIELDS

Summary of Completed Work

Field—	Comp.	Prod.	Dry	Gas
Allegheny	25	75	1	1
Bradford	64	180	0	0
Middle Field	22	50	0	3
Venango-Clarion	44	62	5	6
Butler-Armstrong	13	32	3	1
Southwest Pennsylvania	24	117	5	12
West Virginia	74	230	14	27
Southeast Ohio	72	589	16	11
Total Sept.	338	1,336	44	61
Total Aug.	422	1,815	53	79
Difference	84	479	9	18

Rigs and Wells Drilling

	Rigs	Drg.	Ttl.
Allegheny	14	18	32
Bradford	14	55	69
Middle Field	1	11	12
Venango-Clarion	4	22	26
Butler-Armstrong	5	17	22
Southwest Pennsylvania	17	52	69
West Virginia	75	139	214
Southeast Ohio	32	66	98
Total Sept.	162	380	542
Total Aug.	165	385	550
Difference	3	5	8

WELLS COMPLETED
ALLEGANY FIELD

Fee, Empire Oil 1
Fee, J. E. Lesner et al 5
Fee, Forest Oil 5
Fee, Forest Oil 5
Fee, Forest Oil 1
Fogarty, Producers Gas 2
Fee, Empire Ltd. 2
Fee, Empire & Breckenridge 2
Flannagan, W. A. Dusenbury et al. ..... gas
Fee, G. N. Hill et al ..... wtr
Childs, N. K. Wilson 2
Childs Empire & Childs 3
Canfield, J. J. Canfield 2
Fee, Charles Phillips 1
McKee, Empire 2
Fee, Empire 3
Moore, Ebenezer Oil 2
Nobles, Empire 2
Holten, Carl & Co. 2
Fee, Forest Oil 5
Fee, Forest Oil 5
Fee, Forest Oil 5
Fee, Hazelwood Oil 5
Pierce, F. J. Brown et al 5
Bertoil, Putman et al 5

Wells completed 25
Production 75
Gas 1
Water 1

BRADFORD FIELD

Whipple, South Penn Oil 2
Bishop, Kendall Refining 1
Mehan, Zant Estate 1
Mehan, Zant Estate 2
Bingham, H. B. Oil 2
Garlock, Denwood Oil 2
Fee W. J. Healy 2
Bingham, J. S. Green Estate 2
Fee, J. H. Gibson 1
Lafferty, McGregor & Grant 2
Buchannan, South Penn Oil 3
Lafferty, George & George 1
Morse, J. Minich 5
Duke, Gridiron Oil 3
Duke, Gridiron Oil 3
White, South Penn Oil 2
White, South Penn Oil 5
Borden, South Penn Oil 2
Duke, Duke & Blair 3
Werthman, Fennell & Wormer 3
Baldwin, F. E. Baldwin 4
D. C. and B., C. A. Duke 2
Burns, A. J. Mooney 3
Alexander, Kinley Oil 1
Duke, Staley & Thomas 2
Porter, Forest Oil 4
Porter Forest Oil 4
Porter, Forest Oil 5
Bing, 371, Lane et al, No. 1, 63 5
Bing, 491, Forest Oil, Inc., No. 9, 32 5
Fee, Jos. Boucher 3 1
Fee, H. J. Sturdevant 3
Wilson, Emery & Wagner 1 1
Weston, Jr., Tr., South Penn Oil 67 3
Drake, Hamlin et al 2
Fee, Kepner et al 1
Burns, Fitzgibbon Estate et al 9 5
Fee Dale, Baldwin & Moore 4 2
Burns, Krampf & McCandless 20 5
Bartlett Estate, J. V. Golden 10 2
Burns, A. W. & J. G. McCandless 8 5
Bing, 300, Tide Water Pipe, Ltd. 4 2
Franchott, F. M. Johnston & Son 2
Franchot, W. C. Kennedy & Co. 2
Fee, E. B. Sage 12 2
Franchot, W. J. Oliver 14 5
Leasure, South Penn Oil 2
Fee, Ellen Barry 3
Fee, South Penn Oil 24 2
Fee, J. H. Rose 32 1
Bing, 170-171, Elder Redfield et al 40 5
Bing, F. M. Johnston 1
Fee, Wm. C. Kennedy Co. 91 ..... wtr
Court, Evans et al 31 ..... wtr
Bing 88, South Penn Oil 9 1
Bing, 136, Simpson Bros. 16 5
Bing, 592, Diament, Oakes & Sons 16 5
Bing, 398, South Penn Oil 2
Bing, 394, Saph & Wright 2
Fee, Leech et al 2
Bing, 570, South Penn Oil 81 6
Bing, 583, Associated Producers 252 20
Bing, 499, South Penn Oil 31 1
Bing, 500, D. W. Daly 24 1

Wells completed 64
Production 180
Water 2

VENANGO-CLARION

Stubler, Wilbert Breene et al 7 1
McCray, McCray & Espey Oil 7 1
Carter, Davidson Est. & Farel 9 1
McCray, McCray & Esby Oil 7 1
Marsh, Earp, Kelly & Selden 19 1
Boyle, S. O. Jones 9 2
Oil City Land, Welch & Loomis Est. 72 1
Stewart, Stewart, Walter et al 6 1
Brummigan, A. W. Bronson 31 ..... abd
Baird, Crawford, Gregory & Co. 28 1
Myers, Craig, Hoffman et al 12 1
P. R. R., J. W. & W. P. Highfield 28 1
Lusher, Butler, Dally et al 7 1
Gallagher, McKim Titus et al 2 1
S. & C. Lake Ice, S. & C. Lake Ice 6 1
McCandless, A. T. Straub 49 1
Dempsey, Yanke, Suhr, Burch et al 7 2
Conway, Kelly heirs and Earp 20 1
Sparks, Nickle & O'Brien 15 1
Linch, Boyle & Kaiser 11 1
Fulmer, Andrews, Brecht et al 5 1
Fulmer, Andrews, Brecht et al 6 1
Smithman, J. B. Smithman 169 4
Fisher, S. Y. Ramage 14 2
Mull, Mull & Co. 2 ..... dry
Korb, Sporer, Korb et al 1 ..... dry
Buchanan, T. Hoffman & Co. 1 ..... dry
Clarion—
Guth, Alum Rock Gas 3 ..... gas
McLaughlin, J. M. McLaughlin et al 15 ..... gas
Hartle, Frank Hartle et al 2 1
Whitling, Alum Rock Gas 9 1
Berlin, R. P. Berlin et al 5 1
Brown Bros. Campbell, Hummel et al 2 1
Bunis, Meier, Kugler et al 2 1
Johnson, Amsler, Olson et al 4 1
Porter heirs, W. F. Cropp & Co. 9 1
Gilmore, Phillips & Lamberton 1 ..... gas
Rouch, C. S. Glouser et al 1 ..... dry
Forest—
Clapp, Hertzel, Carnahan et al 66 ..... gas
Clapp, United Natural Gas 1 ..... gas
Fertig, United Natural Gas 1 ..... gas
Fitts, Fitts Oil 1 5
Fitts, Fitts Oil 2 15
Fitts, Fitts Oil 3 6
Kingsbury, F. A. Williams 32 2

Wells completed 44
Production 63
Dry 5
Gas 6
Abandoned 1

MIDDLE FIELD

Vosburg, Berry Bros. 1 1
Vosburg, Berry Bros. 2 1
Proper, H. Gibson 2 1
Lot 2593, Hoskins & Roeder 84 4
Green, Bowman & Co. 1 ..... gas
Baily, Baily & Co. 23 1
Bingham 300, H. P. McKalip et al 36 3
Wright, Cotton & Moore 7 1
Bingham, J. L. Yerdon 34 1
Bingham 367, Howard McCallum 42 6
Lawton, Gallup Elder et al 21 3
Emerson, South Penn Oil 13 3
Emerson, South Penn Oil 14 8
Grandin, J. B. Hadden 31 3
Lot 337, Pennsylvania Oil 829 ..... gas
Water Co., Eberhart & Johnson 1
Lot 38, H. A. Siggins ..... gas
Berry, Oil City National Bank 8 1
Berry, Oil City National Bank 9 1
Berry Oil City National Bank 10 1
Hoffman, Titusville Trust 21 5
Hoffman, Titusville Trust 22 5

Wells completed 22
Production 50
Gas 3

BUTLER-ARMSTRONG

Williams heirs, Riddle Cross et al 10 1
Bell, Grieff, Eibeck et al 9 5
Robinson, S. T. Robinson 1
Hartzell, American Natural Gas 1 ..... dry
Loise, Brown & Schenck 2 ..... dry
Hulings, East Brady G. & F. 7 3
Hanna tract, Bream Oil 5 1
Sasso heirs T. W. Phillips G. & O. 2 10
Reott, Nobel & Co. 1 ..... gas
Shanor, M. B. Finnessy 14 2
Vogan, M. B. Finnessy 10 2
Meeder, Meeder, Goehring et al 2 ..... dry
Bauer, Burns, Bauer et al 2 7

Wells completed 13
Production 32
Dry 3
Gas 1

ALLEGANY FIELD
Rigs

Fee, Forest Oil (three rigs).
Smith & Gray, J. B. Gray.
Fogarty et al, Producers Gas.
Fee, Empire & Breckenridge.
Fee, J. Dunning & Sons.
Fee, J. Trenkle Est.
Childs, Empire & Childs.
Fee, Hill & Co.
Fee, B. & C. Oil.
Crawley, O. C. & S. P. Oil.
Fee, Bertoil et al.
Pierce, F. J. Brown.

Wells Drilling

Fee L. W. Shaner et al.
Wells et al, Producers Gas.
White & Bartlett, Phillips & Howard.
Fee, Empire Ltd.
Fee, Sawnett Oil Corp.
Fee, Sawyer & Martin.
Fee, G. N. Hill.
Fee, Knights Creek Oil.
Holten, Richardson et al.
Moore, Ebenezer Oil.
Nobles, Empire.
McKee, Empire.
Fee, Forest Oil (two wells).
Bertoil, McCurdy et al.
Fee, R. E. Lesner.
Fee, R. J. Dermitt.
Fee, E. G. Williams et al.
Rigs, 14; wells drilling, 18; total, 32.

BRADFORD FIELD
Rigs

Burns Krampf & McCandless 21.
Bartlett et al, J. V. Golden 11.
Franchott, N. D. Gibson et al.
Franchott, Wm. C. Kennedy & Co.

(Continued on Page 129)

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MILLER COUNTY, ARK., WILL GET PLAY

Numerous Evidences of Structure Claimed to Have Been Found by Geologists Has Resulted in Wildcatters Getting Busy With Territory Between Texarkana and Homan May Soon Become Active

By Ray H. Whitney

TEXARKANA, Ark., Oct. 15.—Miller County is another portion of Arkansas that is coming in for an active play by the wildcatter. At least 10 tests will be under way before the passing of another few months. Like the major portion of the State, geological conditions are hard to ascertain, but enough evidence has been found in various localities of Miller County that warrant operations.

There has been, in the past, a few tests drilled in this county, but very little attention was paid to coring and testing and without this being done, a thorough test can not be made. With several indications of structure more attention will be paid to the drilling and something worth while may result. The present seat of activity is in and around the hamlet of Homan, approximately 12 miles northeast of Texarkana. Already two tests are underway, two rigs are up and another is being moved in.

This area has been gone over by a number of geologists and there are numerous evidences of structure. Therefore, a number of tests have been recommended. Hardly a block is available between Texarkana and Homan, as the operators seem to prefer the north end of the county, although some activity is reported in the southern portion.

Heretofore, operations, in most every instance, have been carried on by persons who hoped to finance their tests by stock sales, but recent deals have been closed with operators who are financially able to go ahead and complete the tests to the contract depth. While a number of geologists do not recommend tests deeper than 2,500 feet, practically all of the work now contracted for calls for 3,000 feet. A number look for some good shallow sand developments while others think the best chances are in the Woodbine formation.

Important Test Starting

What is regarded as one of the most interesting tests now starting in the county, is located on the H. S. Priest lands, known as the Riverland Ranch, in the center of the northeast quarter of Section 27-14-27e, by Neal and others of Indiana. A 112-foot derrick has been erected. A rotary outfit has been moved in by the Artex Drilling Co., and work will be startd immediately for a 3,000-foot test. The location was made by M. J. Munn, former head of the geological department of the Gypsy Oil Co. From a geological standpoint it holds inducements, and while the data obtained are meager, it justifies a test in that immediate area. Mr. Munn and his associates spent some time in going over this area and his comprehensive report is of interest.

The Priest location is 12 miles northeast of Texarkana and 2 miles south and east of Homan. The greater portion of the country is wooded. A road had to be constructed to the location. The Neal interests have a block of 11,000 acres. Surrounding it other tests are underway, or being started. Great care will be made in the coring and testing of the Priest well, which work will be supervised by the Munn interests. Acreage has been taken around this test by various interests.

Geological Conditions

The following report on Miller County, made by Mr. Munn and the first one to be made public is of interest as it covers the area around the Priest location of Neal and others, as well as the Gillespie, which will be drilled by the Munn interests. While in the report Mr. Munn states that one or more sands in the Trinity formation may be found down to a depth of 2,400 feet, he also is of the opinion that there is a possibility of finding other sandstones capable of producing oil or gas, in the low levels.

In making a geological report on the Priest and Gillespie locations, Mr. Munn makes the following comments:

Stratigraphy

"This area lies within the Gulf Coastal Plain. The oil bearing rocks are of Cretaceous age. The prospective oil sands where these wells are being drilled are the ones that have furnished the oil in the pools of northern Louisiana and southern Arkansas. In descending order these sands are, the Nacatoch sand found here at about 500 to 600 feet; the Annona chalk, found at 1,000 to 1,100 feet; the Blossom sand, or sands, at 1,450 to 1,500 feet; the Woodbine sands from 1,700 to 2,000 feet and one or more sand of the Trinity formation of Lower Cretaceous age down to 2,400 feet.

From the data at hand there seems to be at least eight sand horizons present in this area (exclusive of the Nacatoch which is too shallow) which have furnished pools of oil of high gravity at other places in southern Arkansas and northern Louisiana. These sands are of good quality so far as known and are at the proper depths to furnish oil where the other necessary geological conditions are favorable. Good shows of oil and gas in some of the wells already drilled suggest that pools may have accumulated at places having favorable structure.

General Structure

In southwest Arkansas the Cretaceous beds have a general dip to the south and southeast. This dip can be determined accurately between wells that have been drilled to or below the Annona chalk and the strata penetrated carefully logged. In the areas between the deep wells the local structure can not be contoured accurately because of the lack of exposures of beds at the surface that lie parallel with the Annona chalk.

In the Gulf Coastal plain of southern Arkansas the lowest beds of Cretaceous age lay slightly inclined to the south and east, on much older rocks of entirely different character. It is generally agreed that these older strata were thrown into close folds faulted and in places subjected to intense crushing by lateral compression long before the Cretaceous Sea in which the Cretaceous beds were deposited as sediments, had enroached over this region from the south. During the time, and after the deposition of the Cretaceous beds, many slight movements in the older rock mass had the effect of throwing the Cretaceous beds into large gentle anticlinal and synclinal folds, and has caused also the development of many local domes, basins, and in places more or less faulting in the Cretaceous beds. One of these large anticlinal areas developed in the Cretaceous beds, is the Monroe-Caddo Uplift on which a number of local domes produce oil and gas. The major axis of this large uplift lies almost east and west, being slightly north of west.

In southern Arkansas there is evidence available suggesting the presence of a similar general uplift in the Cretaceous rocks, having a more nearly southeast-northwest trend, and on which occur the local structures controlling the accumulations at Stephens, Smackover and El Dorado.

Evidence of Local Structure

The value of the Priest and Gillespie tracts depends very largely upon whether or not they are located on favorable structure. There is not available enough reliable geological evidence in this area to permit accurate contouring of the Cretaceous beds. There is, however, excellent evidence of favorable structure in this vicinity.

I wish to call brief attention to the peculiar drainage in Townships 12 South, 13 South and 14 South, Ranges 26 and

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25 West. Especially the course of Bridge Creek in Sections 5 and 7 Township 13 South, Range 26 West, where it turns abruptly eastward from a southerly course and flows from Red and Little River at a point less than 2 miles from the river valley. More peculiar is the direction of flow of tributaries to Bridge Creek south of Sprudel. These tributaries rise at the edge of the bluff of Red River Valley and flow away from the river valley to this small creek. This condition also exists north of Red River in Township 13 South, Range 27 and 28 West, where all the small streams adjacent to Red River rise near the river bluff flow northward away from the river and empty into a small creek, which in turn flows into Little River. These facts suggest strongly an uplift in Red River Valley in Miller County, especially east of Paups Spur, which tilled the strata and caused the development of those peculiar drainage conditions.

Local Dips

As a rule dips observed in beds exposed at the surface in the Coastal Plain of southern Arkansas are of doubtful value in determining the dips of the Cretaceous beds in which pools of oil occur. However, in rare cases local dips may be found that furnish reliable evidence of structure. Such an exposure occurs in the south bluff of Red River in an isolated hill known locally as Buzzards Bluff in the east half of Section 17 and the south half of Section 16-14-26w, Miller County. At this point, a series of thin iron ore beds, lie imbedded in black to dark blue fissil shale. Here these smooth bedded layers are continuously exposed for over 600 feet. The northwest dip is at the rate of about 125 feet to the mile.

In 1911, when this exposure was first examined by the writer the river washed the bluff about 1,000 feet further to the northwest than at present. At that time during a period of low water in the river the writer measured 43 feet of Northwest dip with a hand level on one continuous 6-inch layer of iron ore imbedded in black shale. This exposure was walked without a 10-foot break for over 500 feet. At present the bed of the river at this point is filled with sand up to high water and only the upper part of this section can be seen. Half a mile further southeast from this exposure two small normal faults with a combined throw to the east of about 25 feet are exposed. West of this fault the dip to the east is 9 feet in 450 feet of continuous exposure of single bed. East of the fault the dip to the northwest is about 10 feet in 400 feet. This dip to the northwest extends eastward along the bluff as far as the rocks are exposed.

Slight local dips to the east and northeast in a lignite bed occur in Section 21-14-25w. A northeast dip on a massive sandstone was seen in the northeast quarter of Section 16-14-25w.

Dip on Top Annona Chalk

In the Shultz well drilled in the northeast corner of Section 33-13-26w, the top of the Annona chalk as corrulated by Miser in the United States Geological Survey Bulletin No. 691, has an elevation of 656 feet below sea level. The top of this chalk in the Munn-Shaw well in the southeast corner of Section 17-14-26w is 733 feet below sea level. This gives a south dip of 77 feet between these two wells, a distance of 4 miles. Please note that the northwest dip of 43 feet measured by the writer in the River Bluff in Section 17-14-26w occurs between these two wells.

The top of the chalk in the Mann Land & Development Co. well in Section 33-15-26w is 1,292 feet below sea level. This gives a south dip of 559 feet in 7¼ miles between the Munn-Shaw well and the Mann well.

The Shultz well in Section 33-13-26w was the first test drilled in this vicinity. It was drilled by the Gulf Refining Co. with a rotary outfit. The well was begun March 19, 1916, and completed to a depth of 3,025 feet on June 9, 1916, a total drilling time of 82 days. This loca-

(Continued on Page 126)

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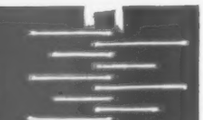

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Heat and Pressure Conditions in Origin Of Petroleum Oils

The same conditions that brought about the union of sulphur with gold, silver, iron, lead and other metals, by holding the sulphur in a gaseous form while the metals were heated liquids, says Letson Balliet in the Salt Lake Mining Review, brought about the union of sodium with chlorine (common salt) and made other thermo-chemical unions, also brought about the union of hydrogen with carbon to form our liquid hydrocarbon (petroleum) and our natural gas (CH4).

The difference in gravity is due to different proportions of hydrogen and carbon, in the compound, united under different conditions of temperature and pressure.

Man-made temperatures and pressures have cracked it, distilled it, and refined it into many commercial hydro-carbon products, such as lubricating oils, asphaltum,, parafine, gasoline, vaseline, kerosene, and manufactured gas. But temperatures and pressures greater than man has yet been able to produce, measure or utilize, were the conditions in nature that made the union of metallic hydrogen with carbon.

In producing manufactured oil gas, from fuel oil, one of the steps is to spray warm oil together with steam upon checker brick that are heated to incandescence (probably about 2,500° to 2,600°). Some of the oxygen in the H2O (steam) uites with some of the carbon in the oil, forming a carbon monoxid (CO) and liberates some of the hydrogen water, and leaves some carbon united with a large quantity of hydrogen as CH4 (marsh gas).

Forming Petroleum

Conversely, several thousand degrees of heat under great pressure applied to carbon and hydrogen gas from which the oxygen has been diassociated by the super-heat, has caused the chemical union of hydrogen and carbon in the form of petroleum. Evidently, the origin of petroleum is not dissimilar to the orig.n of water, salt or refractory ore. Remember that such unions occur between the temperatures of disassociation with each other, and the temperature association with other elements. For example, carbon will unite with oxygen, at ordinary atmospheric pressure, at a much lower temperature and pressure than that required for its union with hydrogen.

The theory of organic origin of petroleum oils, was never well established, and is now practically discarded. This condition is what threw the comparative geologists off the track in southern California, (and elsewhere).

By comparative geologists, I refer to that horde of men who hang around mining districts and oil fields, who express opinions on comparisons or "symptoms" with conditions that they think or assume have existed elsewhere where oil or mineral ores have been found. They call themselves geologists, but will not undertake to express anything but adverse opinion in new fields where deposits have not been found. These comparative geologists know nothing of earth temperatures, chemical unions, electro-chemical actions, pressures, or dynamic geology. What theories they have, are formed on seepages, indications, and proven deposits, or on the theory of organic origin.

Coal and Oil

It is true that seepage oils were first found, and shallow oils were first developed, in the vicinity of large coal measures, but the coal measures probably had no more to do with the oil than any other strata or mineral formation that happened to be near it. Many coal measures have been developed where no oil has been found, and many oil fields have been developed that are remote from any coal deposits.

Southern California has the greatest productive ability and greatest areas of any oil field so far developed in the

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world, with no coal or organic carboniferous deposit within many hundred miles.

The pressure of the gushers may, and doubtless will become much reduced and the field will become one of mechanical pumping. This is no bar, for the mechanical engineers who can put power down to a depth of 5,000 and 6,000 feet for drilling rock formations can put the power to the same depth for pumping.

Southern California has proven that oil pools exist at depths greater than 5,000 feet and probably will find it extending to 6,000 or 7,000 feet and deeper. This will likely lead to operators returning to shallow fields that have been abandoned, and redrilling bigger deposits of oil than ever. There is no reason why it should not be found deeper even than 7,000 feet, if temperature and pressure were right for the union of carbon and hydrogen, and the formation has been folded to create the drainage pools.

Southern California seems to point to the fact that better conditions of temperature and pressure for the union of carbon with hydrogen, exist to greater depths than was commonly supposed.

Domes, anticlinal, synclinal, and monoclinal folds still have important relations to oil deposits, but only for the story they tell of the dynamic forces, and for drainage of the oil into pools, and not merely as drainage areas for organic matter.

REVISED OIL MANUAL HAS SEVERAL CHANGES

Tagliabue's Manual for Inspectors of Petroleum heretofore contained gravity temperature correction tables only. In the preparation of a new revised edition of the manual which has just been published it was thought advisable to include additional tables, data and testing methods which would be useful to the oil chemist and inspector. The ten tables contained in this new publication are based on the latest researches and the 32 test methods given, are, with few exceptions, either Standards adopted by the American Society for Testing Materials, or the U. S. Interdepartmental Petroleum Specifications Committee, the procedures outlined in these standards being strictly followed. Particular attention is called to the revised Gravity Temperature Corrections Table for A. P. I. (141.5 modulus) hydrometers. This table, just recently completed at the United States Bureau of Standards, was computed in accordance with the recommendations of the Research Department of the American Petroleum Institute. It replaces the old Tagliabue Gravity Correction tables. The new table is based on the latest values of the coefficient of expansion of American Petroleum Oils and has been extended to include temperature as low as 0°F. and as high as 195° F. for certain gravities.

It will be noted that the old tables agree with the new tables fairly well at low gravities and moderate temperatures. At higher gravities and temperatures there is an appreciable variation. It is hoped the transfer from the old to the new tables can be made without serious inconvenience to the oil industry, which, it is felt, will welcome any change which is in the interest of more assurate results.

Attention is also directed to a new "pounds per gallon table" which replaces the old table giving this relation. This table was also computed in accordance with the recommendations of the American Petroleum Institute and has been approved by the U. S. Bureau of Standards. The new table is based on the value 8.328, instead of 8.331 as the weight of one gallon of water and includes the so-called buoyancy correction.

AMERICANS IN RUMANIA OIL

Oil fields of the firm of Ilias Stratulat in Rumania are to be taken over by a group of American and Czecho-Slovakian financiers. They have formed a company with a capital of 100,000,000 lei and have asked for further concessions from the Rumanian Government.

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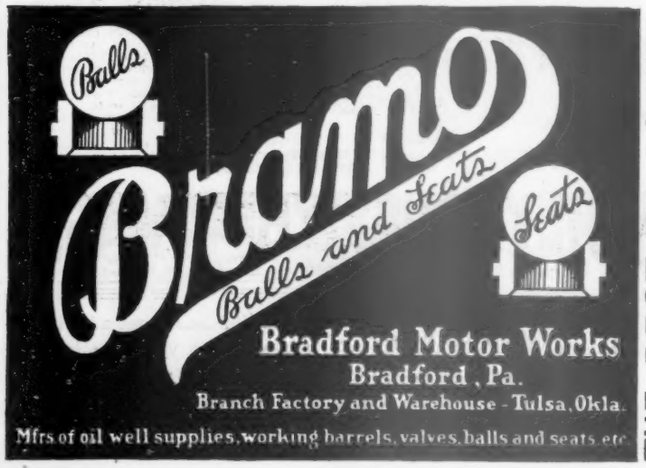

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MILLER COUNTY, ARK., WILL GET GOOD PLAY

(Continued from Page 123)

tion was selected because of a seepage of what was regarded as natural gas in a nearby lake. Several sands were tested for oil by running casing and bailing the mud from the hole according to the best oil field practice in rotary drilling at that time.

The Munn-Shaw well also was drilled by the Gulf Refining Co. It was begun on July 9, 1916, and completed to a total depth of 3,014 feet on September 4, 1916, a total drilling time of 47 days. The writer has investigated the manner in which this well was drilled. It is said no tests for oil or gas were made of any sands encountered in this well. No cores were taken and no record is available to show that the mud was bailed from the well from the time it started until it was completed and abandoned.

The test now being drilled in Section 23-15-26w is below 3,000 feet in the Trinity formation. It seems to have been drilled with great care. Many cores have been taken. Several shows of gas and high gravity oil have been reported in it. One of the best oil showings was in a core taken at about 2,820 feet. This sand will be found in the Gillespie & Priest wells at between 2,200 and 2,300 feet.

In conclusion, the data furnished above, while not being positive proof of an uplift in the northeastern part of Miller County and adjacent portions of Hempstead County, do show clearly the presence of a dome in 14-26-26w at some point east of the northwest dips exposed in Sections 16 and 17.

Other Operations

On the Gillespie tract, approximately 6 miles east and a little north of the Priest test, the Munn Brothrs, Inc., has a rig completed on the Gillespie tract, in the northeast quarter of Section 22-14-26w and will drill a deep test. Approximately 3 miles to the northwest of the Priest test, Graham and others have reached a depth of 1,600 feet and will drill to 3,000 feet. The rig is on the Adams plantation, in the northest corner of the southwest quarter of Section 8-14-27w. It is but a few miles from Homan. To the southwest of the Priest location, 6½ miles, Kinsley & Co. are down 100 feet and will make a 3,000-foot test on a block of 7,500 acres in the southwest quarter of Section 33-14-28w. This acreage starts within a short distance north of Texarkana and runs northward. Approximately 3 miles to the south of the Priest tract, California interests are reported to be figuring on a deep test on the Bishop lands, and south of this another drilling block is being leased.

Seven miles south of the Munn location the test of the Central Coast Oil Co., known as the Mounds well, is drilling below 3,000 feet. This location was not reported upon favorably from a geological standpoint, a fault reported to be running through that area. To the north of the Neal & Munn locations and over in Hempstead County, there is some activity, while the same can be said of Little River County. In the southwest corner of Section 12-13s-27w, Johnston & Martin have a derrick up for a deep test. This is 7 miles north of the Priest test and just 2½ miles north of the Johnston & Martin location. Sumner and others are drilling in the northwest of the southwest of Section 36-12-27w. This shows considerable activity in and around this area and if the country has any oil or gas, it should be uncovered before the passing of many more months.

Nearly all of the tests drilling are with rotary tools. To complete a 3,000-foot test with a rotary, it takes an outlay of at least $25,000. With care taken in the operations, the drillers will not pass up any formations as particular attention is now being paid to coring and testing. With this being done, and the tests well located, Miller County may enter the productivity class within the near future.

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Treasury Official Lauds Oil Men for Honesty in Taxation

By Charles E. Kern

WASHINGTON, Oct. 15.—"The average oil man has a sporting instinct and is especially honest when a matter of honor is involved, whether he wins or loses. During the years I have been associated, as an official, with oil men, in connection with the payment of their taxes, I have never known of a single instance in which they have been dishonest in the information they have given, upon which the amount of their payments has depended."

This high compliment to the oil industry was paid by one of the highest officials of the Treasury Department today, in the presence of the writer, and anyone who knows the ins and outs of tax collections as a whole, will appreciate this very unusual tribute to the men whose industry and courage have been the instruments by which one of the greatest industries of the country has been created.

Of course, this official was not talking about fakers who operate bogus oil companies and swindle the public. He was referring to the honest-to-goodness oil man who plunges into the production and refining business and lays his fortune and his energies on the "Altar of the Goddess of Chance."

Forced Keeping of Records

When the present income tax law went into operation, it found thousands of oil producers, and a considerable number of refiners and distributors, with their accounts kept in a very unmethodical manner. This made a vast amount of trouble for them when the 1917 tax returns were made. They had very little in the way of records upon which to predicate the information for which they were called upon to furnish by the Treasury Department. Practically the same condition applied to them during the year or two that followed. That would have been a wonderful opportunity for a man with a bad memory. They might have forgotten scores of facts that had a very distinct bearing upon the amount of the taxes they were to pay. All sorts of questions relating to depletion and depreciation were involved in their returns and a poor memory and no records joined together would have added a large amount to their bank account. They could not be blamed for not having records, because the law was a new one.

Many of these men operated as individuals, so that they had no responsibility except to their own personal interest. This was a condition that called for honest men, if the Government was to receive all of the taxes to which it was entitled. Yet, in spite of these facts, when all of the returns for 1917 were made and audited, a certain uniformity in results shown in the operation of oil properties as a whole, was the best proof that the oil man with a sporting instinct and a strong inate honesty of purpose had told the truth and paid the Government every cent to which it was entitled.

Determining Depreciation

The first year or two of the operation of the income tax resulted in systematizing the keeping of accounts by oil producers and refiners in a way that it is declared will be worth to the oil industry as a whole, almost as much as the taxes it has been required to pay. The installation of methods of bookkeeping, and the gradual conformity to decisions laid down by the Income Tax Unit have created a fund of substantial information respecting various operations of the industry that are of value in many ways. In determining methods for arriving at facts of depletion as they affect knowledge relating to the gradual absorption of wells, as well as the value of petroleum in the ground, the understanding arrived at in the settlement of taxation questions will continue to be a basis for the sale of oil property.

In the matter of depreciation, the same

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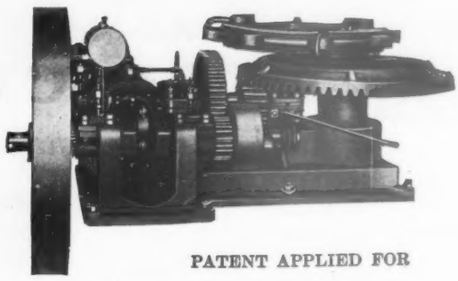

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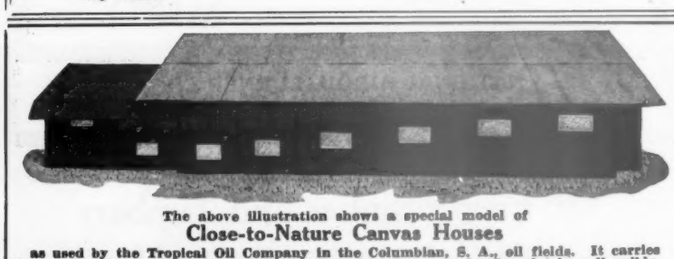

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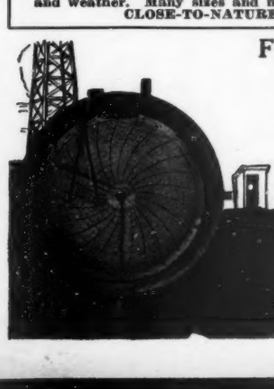

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statement applies. Engineers may have had certain standards of depreciation applying to various conditions of climate and otherwise, but it was not until the payment of taxes made it necessary to adopt standards of depreciation that a record was gradually made that is now thoroughly dependable. For instance, depreciation of oil well casing was a matter of uncertainty in 1917, compared with the knowledge that is available to an engineer in the oil and gas section today. Now it is quite well known that the life of oil well casing may run anywhere from 5 to 40 years. In fact, in the oil region of western Pennsylvania, there is oil casing known to be 40 years old and still in use. In the region about the Gulf, where there is salt water infusion, five years is a very reasonable life for the same kind of casing. Between these extremes there are many differences in the life of casing according to climatic and underground conditions.

No "Compromises"

In the early stages of the operation of the oil and gas section when the question of depreciation arose, it became necessary for the operator to state his opinion together with the facts upon which he based it. These facts consisted of the knowledge of actual conditions in his neighborhood; all of which had to be certified to by the persons best qualified to know them. This information was checked up by officials for the Government, and the matter under consideration was decided. The oil and gas section never cares to use the word "compromise," in stating the amount arrived at after a discussion between the taxpayer and the government agent. It is the function of the Treasury Department to determine what the tax shall be, so that there can be no compromise. As a matter of fact, something happens that is very much like a compromise, but the amount arrived at is determined by the Government agent.

All of this information is now of the utmost importance in determining the value of oil property when there is a sale. Formerly, the value was arrived at with more of a hit or miss calculation. Today practical certainty has been produced in many ways. Because of this practical certainty in respect to various matters affecting income tax, it is believed here that the 1922 and 1923 returns, when they are audited, will show great improvement over the returns of the first years of application of the laws of income tax. Taxpayers have not only learned to keep books in conformity with the requirements of their tax returns, but they have become familiar with decisions respecting various elements of deduction that are allowed, which should permit them to answer questions so that they may be promptly acted upon. All of the taxpayers' difficulty is really in respect to deductions so far as the oil industry is concerned, and all that is necessary in respect to these deductions is to have them substantiated by a statement of all the facts bearing upon them.

One of the greatest difficulties that has been experienced in auditing returns here has been that the taxpayer does not appreciate the importance of explaining his deductions. He makes deductions and believes that figures speak for themselves. If he were to explain just why they are made he would find that there would be little delay in auditing his returns. This applies to the honest man, who has no desire to evade a statement of facts, but he cannot be brought to understand that the information called for in the complicated forms that are given him must be furnished.

The fact is, the difficulties over tax adjustments have been largely magnified in the minds of the taxpayers. The Treasury officials do not look upon these taxpayers with any air of suspicion, and as stated, in the oil industry, there is an unusual confidence in the integrity of the taxpayer.

FRENCH CRUDE OIL PRODUCTION

The production of crude mineral oil in France decreased 50 per cent to 8,350 tons for the second quarter of 1923.

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REPORT OF OPERATIONS IN EASTERN FIELDS

(Continued from Page 121)

Leasure, South Penn Oil.
Fee, South Penn Oil 25.
Bing, F. M. Johnston.
Bing, A. L. Stover.
Fee, Wm. C. Kennedy Co. 93.
Fee, South Penn Oil 41.
Fee, South Penn Oil 83.
Bing, 136, Kennedy Co. No. 4, 41.
Bing, 570, South Penn Oil 83.
Bing, 491, Forest Oil 32.
Bing, 490, T. H. Kennedy No. 2, 95.

Wells Drilling

Weston, Jr., Tr., South Penn Oil 28, 68.
Fee, Quinlan Bros.
Drake, Quinlan Bros.
Drake, Hamlin et al.
Fee, Kepner et al.
Bing, 370, C. L. Wann et al 23.
Bing, 371, Lane et al No. 1, 64.
Bing, 420, G. C. Grow 25.
Fee, Jos. Boucher 4.
Brown et al, Polley Bros. 4.
Larson M. Shear 1.
Fee, Mohan et al.
Fee, Wilson & Fitzgibbon.
Fee, R. O. Landon et al 27.
Leasure, South Penn Oil.
Griffith et al, J. E. Golden.
Fee, Ellen Barry.
Bing. 453, South Penn Oil 85.
Fee, Mrs. S. F. & George Kaber 34.
Fee, South Penn Oil.
Fee, Bryner & Benson.
Fee, Wm. C. Kennedy Co. 92.
Kennedy & Clarke, Phoenix Oil 29.
Bing, 136, Kennedy Co. No. 4, 39.
Bing, 136, Kennedy Co. No. 4, 40.
Paul Estate, South Penn Oil 5.
Bing, 576, South Penn Oil 82.
Bing, 389, D. W. Daly.
Bing, 370, C. L. Wann et al.
Bing, 409, South Penn Oil.
Bing, 533, South Penn Oil 58.
Bing, 538, C. P. Byron Est. 22.
Bing, 439, South Penn Oil 63.
Bing, 441, Hazelwood & South Penn Oil 73.
Whipple, South Penn Oil.
Fee, J. H. Gibson.
Lafferty, McGregor & Grant (two wells).
Fee, Webb Est.
Zeigler, Evans & Wood.
Garlock, Denwood Oil.
Lafferty, George & George (two wells).
Skinner, W. E. Burdick.
White, South Penn Oil.
Borden, South Penn Oil.
Pittenger, South Penn Oil.
Baldwin, F. E. Baldwin.
Duke, Staley & Thomas.
Robinson, T. H. Kervin, Jr.
Porter, Forest Oil (two wells).
Baldwin, Forest Oil.
Lot 387, Pennsylvania Oil 15.
Lot 422, Sloan & Zook 12.
Rigs, 14; wells drilling, 55; total, 69.

VENANGO-CLARION

Rigs

Myers, Craig, Hoffman et al 13.
Cross, H. J. Haffmon 5.
Smithman, J. B. Smithman 170.
Clarion—
McElhatten, Whitehill & McElhatten 4

Wells Drilling

Critchlow, S. Y. Ramage 33.
Eakin, G. A. Eakin 26.
McCray & Espey Oil 8.
Brown, C. N. Brown 9.
Kightlinger, Oil City National Bank 11.
Oil City Land, Welsh & Oil City Trust 73.
Clark, Robt. & Geo. Foggan 19.
Cross, H. J. Hoffman 4.
Porter heirs, J. B. Porter 44.
McCandless, A. T. Straub 50.
Parsons, S. R. & T. W. Parsons 12.
Mull, Mull & Co. 3.
Welton, Hovis & Co. 1.
Moorehead, Utzinger, Mong et al 5.
Clarion—
Obenrader, Alum Rock Gas 3.
Swartzfager, Swartzfager & Hall 9.
Garis heirs, Mong, Garis et al 4.
Garis, Alum Rock Gas 4.
Barnett, Alum Rock Gas 2.
Best, Berlin, Yonkers et al 1.
Kline, Gibson, Kline et al 3.
Neely, Slicker, Berlin, Hahn et al 2.
Rigs, 4; wells drilling, 22; total, 26.

MIDDLE FIELD

Rigs

Bingham, South Penn Oil 25.

Wells Drilling

Hood, Mead & Hood 3.
Bingham 296, D. T. & M. Andrus 79, 80.
Duke, M. L. Boyle 8.
Lawton, Gallup, Elder et al 22.
Mantz, L. F. Kinley et al 32.
Rogers, F. H. Trax.
Glenn, Holmes et al 1.
Merkle, Brockelhurst & Kapp 35.
Hoffman, Titusville Trust 23.
Jennings, C. E. Carnahan 28.
Rigs, 1; wells drilling, 11; total, 12.

BUTLER-ARMSTRONG

Rigs

Boggs heirs, R. C. & W. V. Binkerd.
Montgomery, E. W. Pitts 3.
Forcht, Forcht, Smith et al 1.
Sheridan heirs, Nobel & Co. 1.
Szabo heirs, Denny & Co. 2.

Wells Drilling

Campbell, H. H. Campbell 1.
Campbell, Campbell, Sherwin et al 1.
Christy, Grieff, Eibeck et al 1.
Campbell leases, Rankin, Campbell et al 6.
Campbell heirs, McCarrier, Ruch et al 3.
Ray, Proper, Graham et al 2.
Campbell, Baird, McCandless et al 1.
Beikler, Steen & Co. 1.
Little, Little & Co. 1.
Ramsey, Wm. Pfeifer 1.
McNaughton, W. E. & E. J. Porter et al 1.
Graham, Clully & Donaldson 1.
Lick, Brad Penn Oil 1.
Hilliard, Butler County National Bank 3.
Frahkorn, Oscar Shoup & Co. 1.
Wilson, Garvin & Reynolds 1.
Hutchison, L. D. & T. R. Campbell 7.
Rigs, 7; wells drilling, 17; total, 24.

SOUTHWEST PENNSYLVANIA
WASHINGTON COUNTY

Clark, Mfrs. L. & H. Co. 1	dry
Pry, Chas. Tope & Co. 1	dry

ALLEGHENY COUNTY

Dickerson, Mfrs. L. & H. Co. 1	dry
Parkinson, Carnegie N. G. Co. 1	gas
Armstrong, Peoples Gas Co. 2	gas
Sarver, Shaffer & Co. 1	gas
Vandervoit, Amer. N. G. Co. 1	gas
Brewerman, Amer. N. G. Co. 1	gas
Ingram, Ingram O. & G. Co. 2	3
Neeley heirs, D. Neely & Co. 2	3
Musgrave, Holsinger & Co. 1	3
Null, Schuck & Co. 2	5
Economy Tract, E. E. Laughnor 93	gas

BEAVER COUNTY

Elmer E. McDevitt, J. R. Edwards 4	2
McStay, N. W. O. & G. Co. 4	1
Graham heirs, Graham Bros. & Co. 1	dry

GREENE COUNTY

Beall, Unknown 1	dry
Huffman, Wind Ridge O. & G. 1	gas
Parry, Mfrs. L. & H. Co. 1	gas
Waters, Boundy Bros. & Co. 1	gas
Stogie, Swisher & Co. 1	gas
Rice, S. W. Meales & Co. 2	100
Hamilton, Marshall Oil Co. 1	gas
Carner, Mfrs. L. & H. Co. 2	gas
Wells completed	24
Production	117
Dry	5
Gas	12

WASHINGTON COUNTY
Rigs

Berry, J. S. Watson & Co. 2.
Paul estate, Wm. K. McSmith 2.
Day, Mfrs. L. & H. Co. 1.

Wells Drilling

Gabby heirs, Clark Bartlett & Co. 1.
Morrison, Hughes & Day 1.
Scott heirs, Magnetic O. & G. Co. 1.
Auld, Mfrs. L. & H. Co. 2.
Rigs, 3; wells drilling, 4; total, 7.

ALLEGHENY COUNTY
Rigs

Pahlman heirs, Amer. N. G. Co. 1.
Allisee, Peoples Gas Co. 4.
Lyons, M. M. Walley 8.
Rampt Clark & Co. 1.
Davis heirs, Davis O. & G. Co. 1.
Chenot, Leidecker & Co. 4.

Wells Drilling

Stewart, So. P. O. Co. 2.
Long heirs, Amer. N. G. Co. 3.
Campbell, Panhandle Oil Co. 1.
McComb estate, Panhandle Oil Co. 1.
Morrison, Peoples Gas Co. 2.
Murphy, Murphy & Co. 1.
McHath, Morse O. & G. Co. 3.
Vanderwoit, Amer. N. G. Co. 2.
Sarver, Smith & Dougherty 1.
Myers Bros.' lot, Jones Oil Corp. 1.
Dixon lot, White O. & G. Co. 1.
Tipker, Shaner & Co. 1.
Swartz, Miller & Co. 1.
Weir, Weir & Co. 2.
Pfabb, E. A. Bream estate 3.
Downey heirs, Harbison & Co. 1.
Musgrave, Holsinger & Co. 1.
Rigs, 6; wells drilling, 17; total, 23.

BEAVER COUNTY
Rigs

Connell, Forest O. & G. Co. 8.

Wells Drilling

Craig, J. Craig 2.
Rigs, 1; wells drilling, 1; total, 2.

GREENE COUNTY
Rigs

Whitehill, Peerless O. & G. Co. 2.
Lemley, Tague & Co. 1.
Anderson, Carnegie Gas Co. 2.
Bennett, Bennett O. & G. Co. 2.
Closser, Mfrs. L. & H. Co. 2.
McNay, Mfrs. L. & H. Co. 1.
Brown, Brown O. & G. Co. 4.

Wells Drilling

South, Fred Garrison 1.
Tanner, Greensboro O. & G. Co. 2, 3.
Garard, J. L. Garard 40.
Powell, Phila. Gas Co. 2.
Lantz, Carnegie Gas Co. 2.
Jennings, Carnegie Gas Co. 1.
Caseman, Keystone O. & G. Co. 1.
Lemley, Keystone O. & G. Co. 2.
Lemley, Little Four O. & G. Co. 1.
Caldwell, Caldwell-Grim O. Co. 1.
Wright, Caldwell-Grim O. Co. 1.
Riggs, Ayers O. & G. Co. 1.
Johnson, Carnegie Gas Co. 1.
Taylor, Fox Hill Oil & Gas Co. 1.
Keffer, Boundy Bros. & Co. 1.
Grim-Carpenter, Wyoming F. O. Co. 1.
Whipkey, Big Four O. & G. Co. 1.
Murray, Carnegie Gas Co. 2.
Gary, Carnegie Gas Co. 2.
Hoskinson, Phila. Oil Co. 2.
Williard, Phila. Oil Co. 1.
Wright, Mfrs. L. & H. Co. 5.
Brown, Waynesburg Home G. Co. 1.
Baldwin, Nineveh-Concord G. Co. 1.
Smith, Chas. Sutton & Co. 1.
McGreevy, Waynesburg Products Co. 1.
Drier, Maxton O. & G. Co. 1.
Clutter, Greensboro Gas Co. 1.
Clemons, Greensboro Gas Co. 1.
Rigs, 7; wells drilling, 29; total, 36.

SOUTHEASTERN OHIO
MONROE COUNTY

Hodge, Crew-Levick Co. 4	2
Highman, Ritchie & Williams 2	3
Wells completed	2
Production	5

PERRY COUNTY

Roberts, Kellar Bros. & Co. 22	1
Grannan, C. L. Bullock & Co. 1	12
Sunday C'k C Co., O'Connor & Kelly 1	3
Seidenfield, Perry Oil Co. 1	dry
Finck, Southern Oil Co. 8	90
Latta, Ralph Bros. 1	4
Wells completed	6
Production	110
Dry	1

HOCKING COUNTY

Brimner, Gordon Oil Co. 2	30
H. V. P. Co., Chartiers Oil Co. 173	5
Tracey estate, Kachelmacher estate 9	65
Guess, Adair & Co. 2	gas
Sunday C'k C Co., Sunday C'k C. Co. 109	25
Stacey, Sharren & Son 1	gas
Stacey, Sharren & Son 2	gas
Kistler, Sharren & Son 1	dry
Bell, N. F. P. Co. 1	gas
Stute, Ark. N. G. Co. 2	5
Dawley, Cline & Vensel 3	dry
Wells completed	11
Production	130
Dry	2
Gas	4

MUSKINGUM COUNTY

Baker, Pure Oil Co. 2	10
Knapp, Sun Oil Co. 1	gas
Knapp, Sun Oil Co. 2	20
Leeland, Swingle O. & G. Co. 1	dry
Wells completed	4
Production	30
Dry	1
Gas	1

LICKING COUNTY

Owings, Pure Oil Co. 1	5
Hazelett, Ralph Bros. 5	2
Boy Scout, Ralph Bros. 2	3
Motherspaw, C. E. Saltzgaber 2	3
Bounds, Spindler & Donaldson 1	4
Black, Wehrle Bros. 1	dry
Redman, A. H. Heisey Co. 1	1
Connell, Carter Oil Co. 1	5
Booth, O. F. S. Co. 1	gas
Fry, O. F. S. Co. 1	5
Anderson, Ark. N. G. Co. 1	3
Mikesell, Carter Oil Co. 1	50
Dugan, Ark. N. G. Co. 2	80
Veach, Amer. N. G. Co. 1	20
Wells completed	14
Production	181
Dry	1
Gas	1

FAIRFIELD COUNTY

Miller, Perry Sturm & Co. 1	2
Stemen Lincoln O. & G. Co. 1	dry
Young, Montana O. & G. Co. 1	70
Wells completed	3
Production	72
Dry	1

HOLMES COUNTY

Baker, East Ohio Gas Co. 1	gas
Wells completed	1
Production	0
Gas	1

NOBLE COUNTY

Armstrong, Detrick & Co. 11	dry
Devold, C. V. Cain & Co. 4	dry
Hupp, O. F. S. Co. 1	dry
Noll, Noll Bros. 1	3
Broedel, Robinson & Co. 3	2
Huffman, H. Estadt & Co. 1	1
Wells completed	6
Production	6
Dry	3

GUERNSEY COUNTY

Bay, Pure Oil Co. 1	dry
J. Bay, Pure Oil Co. 1	dry
N. C. Co., Ohio Fuel Supply Co. 1	dry
Wells completed	3
Production	0
Dry	3

MEIGS COUNTY

Bailey, Pure Oil Co. 1	10
Ihle, Clark & Creel 1	5
Wells completed	2
Production	15

KNOX COUNTY

Horn, Snyder & Early 1	dry
Ross, Preston Oil Co. 4	gas
Ross, Preston Oil Co. 5	gas
B. Ross, A. H. Heisey Co. 2	gas
B. Ross, A. H. Heisey Co. 3	gas
Miller, A. J. Denbow & Co. 21	3
Miller, A. J. Denbow & Co. 24	5
G. Mille Snyder & Co. 8	3
McKee, Rocky River O. Co. 27	3
Wells completed	9
Production	14
Dry	1
Gas	4

MORGAN COUNTY

Hilman, Swissvold O. & G. Co. 1	dry
Wells completed	1
Production	0
Dry	1

WASHINGTON COUNTY

Hendershot, Parkersburg Oil Co. 2	1
Heckathorn, E. W. Thornily & Co. 7	5
Smith, Fickeson & Co. 4	dry
Decker, J. T. Dillon 5	2
Wagner, Cowell & Co. 1	2
Rake, Hennig & Co.	3
Clark, Hennig & Co. 6	1
Matheny, Hammond & Co. 2	2
Wells completed	8
Production	16
Dry	1

BELMONT COUNTY

Ferguson, N. G. of W. Va. 2	15
Wells completed	1
Production	15

CARROLL COUNTY

Madison, N. G. of W. Va. 1	dry
Wells completed	1
Production	0
Dry	1

MONROE COUNTY
Wells Drilling

Dye, Harry Binager & Co. 1.
Piatt, Torner & Co. 1.
Handschumaker, Simmons Oil Co. 1.
Starr, N. T. Staudt & Co. 2.
Thompson, Templeton & Co. 3.
Rigs, 0; wells drilling, 5; total, 5.

PERRY COUNTY
Rigs

Kernhorn, Carter Oil Co. 6.
Tracey, Kachelmacher Est. 10.
Ditto, Carter Oil Co. 2.
Solt, Carter Oil Co. 5.
Burns heirs, E. Denman & Co. 4.
Griggs, Carter Oil Co. 2.
Miser, Carter Oil Co. 7.

Wells Drilling

Trimmer, O. F. S. Co. 4.
Sunday Ck. C. Co., Sunday Ck. C. Co. 111.
McCourtney, Southern Oil Co. 7.
Rigs, 7; wells drilling, 3; total, 10.

HOCKING COUNTY
Rigs

Tritch, Carter Oil Co. 6.
Johnston, Griffin Prod. Co. 6.
Cobb-Bradley, Nypenno O. & G. Co. 11.
N. E. P. Co., Bell & Co. 2.
Stone, Preston Oil Co. 9.

Wells Drilling

Ford, Gordon Oil Co. 4.
Stout, Gordon Oil Co. 3.
Tracey Est., Kachelmacher Est. 10.
Green-Schultz, Wiser Oil Co. 3.
Sunday Ck. C. Co., Sunday Ck. C. Co. 110.
B. Smith, Sharren & Son 1.
Helm Clay Co., Ark. N. G. Co. 2.
Vickers, Preston Oil Co. 1.
Nixon, Logan N. G. Co. 1.
Rigs, 5; wells drilling, 9; total, 14.

MUSKINGUM COUNTY
Wells Drilling

Shaw, Pure Oil Co. 2.
Montgomery, Pure Oil Co. 3.
Weaver, Swingle O. & G. Co. 8.
Dozer, Swingle O. & G. Co. 15.
Baringer, Swingle O. & G. Co. 2.

LICKING COUNTY
Rigs

Cooperrider, Midland Oil Co. 2.
Felick, Atha Oil Co. 1.
Rector, O. F. S. Co. 1.
Mossman, O. F. S. Co. 1.
Romine, Carter Oil Co. 2.

Wells Drilling

Hupp, Midland Oil Co. 1.
Holmes, Carter Oil Co. 3.
Boy Scout, Ralph Bros. 3.
Bounds, Spindler & Donaldson 2.
Hughes-Vermillion, W. W. and A. T. Wehrle 1.
Hawkins, W. W. and A. T. Wehrle 1.
Rigs, 5; wells drilling, 6; total, 11.

COSHOCTON COUNTY
Rigs

N. Ashcraft, Leonard O. & G. Co. 4.
Martin, Carter Oil Co. 1.
Wolford, Spindler & Co. 4.
McKee, Spindler & Co. 4.
Norris, Pure Oil Co. 1.

Wells Drilling

Ashcraft, Leonard Oil & Gas Co. 3.
Rigs, 5; wells drilling, 1; total, 6.

FAIRFIELD COUNTY
Rigs

Weaver, Carter Oil Co. 8.
Brandt, Carter Oil Co. 2.
Young, Montana O. & G. Co. 2.

Wells Drilling

Elder, Lincoln O. & G. Co. 1.
Kennedy, Montana O. & G. Co. 3.
Johnson, Blum O. & G. Co. 1.
Young, Carter Oil Co. 1.
Kennedy, Montana O. & G. Co. 4.
Green, Rushville Trst Co. 1.
Brandt, Carter Oil Co. 1.
Wagner, Burnworth & Co. 1.
Rigs, 3; wells drilling, 8; total, 11.

HOLMES COUNTY
Rigs

Smith, Pure Oil Co. 4.
Uhl & Son, East Ohio Gas Co. 2.
Graham, Pure Oil Co. 2.
Neiser, N. W. Pet. Co. 2.

Wells Drilling

Seidlesberger, Madina Oil Co. 1.
Schantz, Madina Oil Co. 1.
Nowells, East Ohio Gas Co. 1.
Carpenter, Pure Oil Co. 2.
Rigs, 4; wells drilling, 4; total, 8.

NOBLE COUNTY
Wells Drilling

Brown, White, McKelvey & Co. 3.
Crum, Urban Nau & Co. 4.
Broedel, Chas. Robenson & Co. 4.

MEIGS COUNTY
Rigs

Krunter, Pure Oil Co. 1.

KNOX COUNTY
Rigs

Dodd, J. J. Bell & Co. 1.

Wells Drilling

Green, Snyder & Rober 4.
Miller, Snyder & Co. 9.
H. Miller, Curran Oil Co. 1.
Snively, East Ohio Gas Co. 2
Rigs, 1; wells drilling, 4; total, 5.

MORGAN COUNTY
Wells Drilling

Deem-Morris, A. B. Lambert 1.

WASHINGTON COUNTY
Rigs

Lawer, Somons & Co. 2.

Wells Drilling

Hutchins, O. C. Dunn & Co. 1.
Matheney, Leidecker & Co. 2.
Mendenhall, Elsie Martin & Co. 1.
Kesselring Plats, County Bank 1.
Eddy, Schad Oil Co. 4.
Rosenbush, Scott & Co. 1.
Haynes, Dailey & Co. 1.
Haas, B. H. Reynolds & Co. 2.
Fryman, Hope O. & G. Co. 1.
Wharff, Peoples B. & T. Co. 5.
Stow, S. J. Bogard & Co. 1.
Daniels, W. F. Meister & Co. 16.
Schramm, Minch & Schramm 1.
Rigs, 1; wells drilling, 13; total, 14.

BELMONT COUNTY
Wells Drilling

Frazier, T. J. Reese 1.

CARROLL COUNTY
Wells Drilling

Buchanon, Lisbon Parties 2.
Taylor, N. G. Co. of W. Va. 5, 6.

WEST VIRGINIA
LEWIS COUNTY

Tims, M. McGann & Co. 1	dry
Gum, Hope Gas Co. 3	gas

MARION COUNTY

Barb, Owens B. & M. Co. 1	gas
Koen Eastern Pet. Co. 3	17
Thomas, F. W. Bartlett 3	5

MONONGALIA COUNTY

Haught, Wm. Haught 8	50

WETZEL AND TYLER COUNTIES

Burcher, Mfrs. L. & H. Co. 1	gas
Furbee, Mfrs. L. & H. Co. 1	gas
Wade, Carnegie Gas Co. 1	5
Conway, Carnegie Gas Co. 3	gas
Peterson, Johns Gas Co. 3	15
Pettit, Phila. Oil Co. 2	gas
Bunnington, R. C. Schultz, 1	gas
Lyons, Carnegie Gas Co. 1	dry
Headlee, Silver Hill Oil Co. 7	10
Snodgrass, Campbell & Kendall 2	5

Hixenbaugh, Mfrs. L. & H. Co. 2 ..... dry
Cumberlege heirs, Carnegie Gas Co. 1.. gas
Moore, Mfrs. L. & H. Co. 1 ..... dry

MARSHALL COUNTY
Lough, Mfrs. L. & H. Co. 2 ..... dry

BROOKE COUNTY
Scott, G. W. Freshwater 2 1

DODDRIDGE COUNTY
L. Maxwell, Columbia Carbon Co. 48.. gas
W. B. Maxwell, Carter Oil Co. 29 .... gas
McIntyre, Carnegie Gas Co.*1 ..... gas
Benedum, G. L. Cabot 1 ..... gas
Smith, I. O. & G. P. Co. 5 20
Draner, G. B. Travis 1 5
Davis heirs, W. D. Gribble 1 ..... gas

RITCHIE COUNTY
Riggs, Hope Gas Co. 1 2
Wilson, E. E. Pope 2 5
Nicholson, So. P. O. Co. 1 ..... gas
Geige, Ashton Oil Co. 3 ..... gas
Duty, Norris & Mercer 1 ..... dry
Burke, So. P. O. Co. 1 1
Mason, Hope Gas Co. 4 ..... gas
Conaway, Melton Bros. 1 2
Layfield, R. G. Gillespie 1 2
Satterfield, Stephens Drilling Co. 1.... gas
Miller heirs, O. C. Satterfield 1 ..... gas
Wence, Lucas & Co. 1 2

GILMER COUNTY
Miller, Philadelphia Oil Co. 1 ..... gas
Hardman, Hope C. & R. Co. 5 7
Bell, Laurel Creek O. Co. 3 ..... gas
Arbuckle, Carnegie Gas Co. 2 ..... gas
Gum, Hope C. & R. Co. 1 1
Pettit, Hope C. & R. Co. 1 ..... gas
Nicholson, Phila. Oil Co. 1 ..... dry
Crites, Phila. Oil Co. 1 ..... gas

CALHOUN COUNTY
Roberts, Federal O. & G. Co. 25 3
Ferrell, A. A. Haught & Co. 1 ..... dry
Elliott, Hope Gas Co. 1 ..... gas
Duffield, Hope C. & R. Co. 3 ..... dry

WOOD COUNTY
Pratt, Hinds Peevey 5 1

PLEASANTS COUNTY
Metherell, E. S. Briggs, 4 1
Brewer, H. P. Gallaher 1 3
Rawson, Arnold Adams & Co. 1 ..... gas
Severns, Donaldson & Co. 1 ..... dry

ROANE COUNTY
Harper, Empire Oil Co. 1 ..... dry
Short, Carter Oil Co. 1 ..... dry
Brown, O. F. O. Co. 1 20
Morgan, Carter Oil Co. 1 10

LINCOLN COUNTY
Jones, So. P. O. Co. 7 4
Grass, C. G. & E. Co. 1 5

KANAWHA COUNTY
Black Band Coal Co., So. P. O. Co. 1.. gas
Jarrett heirs, Empire Pet. Co. 4 2

BOONE COUNTY
Epling, Owens B. & M. Co. 1 ..... dry
Paull-Dickison, So. P. O. Co. 1 ..... dry

CABELL COUNTY
Sanders, Union Central Oil Co. 1 3
Braley, Harshbarger O. & G. Co. 1.... 5
Morrison, Commercial Gas Co. 1 20

WAYNE COUNTY
Guyandotte Land Assn., C. G. & E. Co. 284 ..... gas

Wells completed	74
Production	230
Dry	14
Gas	27

LEWIS COUNTY
Rigs
Gough, Reno Oil Co. 1.
Gaston, A. P. Bailey 1.
Roherbaugh, Shea O. & G. Co. 2.
Keyser, Carnegie Gas Co. 1.
Wells Drilling
John, Hope Gas Co. 1.
Smith, J. C. Chidister 1.
Hopkins, Rinehart & Turner 1.
Bailey, Carnegie Gas Co. 2.
Fahey, Carnegie Gas Co. 1.
Starcher, Jones Oil Co. 1.
Hays Ohio F. O. Co. 3.
Rigs, 4; wells drilling, 7; total, 11.

MARION COUNTY
Rigs
Talkington, Lohn & Barnett 1.
Michael, Phila. Oil Co. 1.
Wells Drilling
Wolf, Marshall Oil Co. 1.
Holbert, C. A. Snodgrass 1.
Rigs, 1; wells drilling, 2; total, 3.

HARRISON COUNTY
Wells Drilling
Duncan, Lohn & Barnett 1.
Allen, Clarksburg L. & H. Co. 1.
Bramer, Johnston & Co. 1.
Connely, Clarksburg L. & H. Co. 2.
Cork, Clarksburg L. & H. Co. 3.
Harrison, N. W. O. & G. Co. 1.
Layman, Weekly & King 1.
Duffy, Aizlurin O. & G. Co. 1.
Swiger, Phila. Oil Co. 1.
Rigs, 0; wells drilling, 9; total, 9.

MONONGALIA COUNTY
Wells Drilling
Wear, So. P. O. Co. 9.
Jackson, Mfrs. L. & H. Co. 1.
Tennant, Carnegie Gas Co. 1.
Wallace, Peerless Oil Co. 1.
Moore, Randall Gas Co. 1.
Wright, Randall Gas Co. 1.
Price heirs, J. H. McDermott O. Co. 8.
Rigs, 0; wells drilling, 7; total, 7.

WETZEL AND TYLER COUNTIES
Rigs
Antill, John Gas Co. 5.
McIntyre, Carnegie Gas Co. 2.
Thompson, Amer. O. D. Co. 1.
Lyons, Wiser Oil Co. 3.
Koch, Silver Hill O. Co. 1.
Blake, Carnegie Gas Co. 1.
Anderson, Cox, Gorrell & Co. 1.
McGinnis, H. L. Lambert 3, 6.
Wells Drilling
Earnest, Mfrs. L. & H. Co. 1.
Littell, Mfrs. L. & H. Co. 2.
Keller, Mfrs. L. & H. Co. 2.
McGuffie, Carnegie Gas Co. 2.
Murphy, Carnegie Gas Co. 1.
Wade, Carnegie Gas Co. 3.
Marshall, Hope Gas Co. 2.
Pendergast, R. C. Schultz 1.
McIntyre, Alvy Oil Co. 2.
Miller, Victor O. & G. Co. 1.
Henderson, Davis & Co. 1.
Stephens, So. P. O. Co. 15.
Snodgrass, Carnegie Gas Co. 1.
Parish, Phila. Oil Co. 1.
Smith, Sharp & Sabe, 1.
Spencer, Eagan & Baker 1.
Rigs, 9; wells drilling, 16; total, 25.

MARSHALL COUNTY
Rigs
Blake, Lynn Camp Oil Co. 1.
Hughes, N. G. Co. of W. Va. 1.
Wells Drilling
Logsdon, M. & P. O. & G. Co. 1.
Davis, G. B. Patterson 2.
Yoho, Hope Gas Co. 1.
Blake, Blake O. & G. Co. 1.
Markey, Decem Dev. Co. 2.
Rigs, 2; wells drilling, 5; total, 7.

BROOKE COUNTY
Wells Drilling
McKim Sisters, McKim Oil Co. 14.

DODDRIDGE COUNTY
Rigs
Adams, Rngle Run O. & G. Co. 1.
Allen, Trainer & Summers 1.
Roberts, Keystone Oil Co. 4.
Wells Drilling
Smith, Eastern Pet. Co. 2.
Coulehan, Eastern Oil Co. 4.
L. Maxwell, Columbia Carbon Co. 49.
W. B. Maxwell, Carter Oil Co. 30.
L. Maxwell, Carnegie Gas Co. 28.
Ross, Trainer & Travis 1.
Ables, Trainer & Travis 2.
Kelly, So. P. O. Co. 1.
Kelly heirs, Raccoon O. & G. Co. 3.
Douglass, Hope C. & R. Co. 3.
Ford, Mfrs. L. & H. Co. 1.
Rigs, 3; wells drilling, 11; total, 14.

RITCHIE COUNTY
Rigs
Tharp, Carnegie Gas Co. 2.
Reed, Carnegie Gas Co. 1.
Britton, Phila. Oil Co. 1.
Mitchell heirs, Hope Gas Co. 1.
Brown, So. P. O. Co. 1.
Miller, So. P. O. Co. 1.
Leggett, Elder & Straley 1.
Collins, Cheaveraux De F. O. Co. 2.
Bode, Star Oil Co. 2.
Mason, Star Oil Co. 1.
Leggett, Carter Oil Co. 1.
Darnell, L. O. & G. Co. 1.
Lemon, So. P. O. Co. 41.
Haught-Lambert, So. P. O. Co. 9.
Lawrence, Hays & Roberts 3.
W. Va. Tract, Whitwood O. Co. 29.
Pope, E. E. Pope 2.
Wilson, Hope Gas Co. 3.
Hudson heirs, Continental O. & G. Co. 3.
Barlow, Rinehart & Co. 2.
Rutherford, Hope Gas Co. 1.
Williamson, J. F. Deem & Co. 3.
Null, Mellon Bros. 2.
Mason, Mason O. & G. Co. 2.
Maxel, W. Va. O. & G. Co. 1.
Wells Drilling
Somerville, Phila. Oil Co. 1.
Mason, Hope Gas Co. 2.
Perrine, Hope Gas Co. 1.
Smith, Phila. Oil Co. 1.
Tharp, Carnegie Gas Co. 5.
Baker, E. D. Lynch 1.
Pritchard, Iea D. Cox 1.
Mullenix, Carnegie Gas Co. 1.
Smith, Creed Oil Co. 1.
Mason, I. O. & G. P. Co. 2.
Beaver, Hope Gas Co. 1.
W. Va. Tract, W. H. Jones 13.
Jonas, Coss O. & G. Co. 3.
Volcanic tract, Clark & Jinds O. Co. 51.
Volcanic tract, Hope C. & R. Co. 4.
West, Big Sand Oil Co. 1.
Haywood, Premier Glass Co. 2.
Hogue, Carnegie Gas Co. 1.
Deak, Spencer & Shrader 1.
McIntyre heirs, L. Roberts & Co. 1.
Smith, Grove & Parrish 7.
McFadden, Cap. Davis 1.
Parks, Maxon Oil Co. 2.
Ritchie Mines Tract, Cairo Oil Co. 19.
Jackson Penn Royal Oil Co. 1.
Pratt, Carter Oil Co. 1.
Rigs, 25; wells drilling, 26; total, 51.

GILMER COUNTY
Gainer, So. P. O. Co. 1.
Goff, So. P. O. Co. 8.
Hardman, So. P. O. Co. 6, 7.
Ellis, So. P. O. Co. 3.
Cothers, Phila. Oil Co. 1.
Hardman, Hope C. & R. Co. 1.
Bennett heirs, Hope C. & R. Co. 1.
Jarvis, Hope C. & R. Co. 1.
Wells Drilling
Miller heirs, Phila. Oil Co. 1.
Linger, Phila. Oil Co. 1.
J. J. Hardman, Hope C. & R. Co. 3.
Wright, McCall & Co. 1.
Rogers, Burnsville O. & G. Co. 1.
McNeamer, Phila. Oil Co. 1.
Moore, Hope Gas Co. 1.
Woofter, Phila. Oil Co. 1.
Miller, Phila. Oil Co. 1.
Reaser, Phila. Oil Co. 1.
Rigs, 10; wells drilling, 10; total, 20.

BRAXTON COUNTY
Wells Drilling
Mayer, Phila. Oil Co. 1.

WIRT COUNTY
Wells Drilling
Depue-McClung, Simmons O. Co. 1.
Daubenspeck, A. F. Daubenspeck 3.
Hale, E. H. Lockhart 7.

CALHOUN COUNTY
Rigs
Jarvis, Hope C. & R. Co. 1.
Mitchell, M. I. Crawley 3.
Wells Drilling
Barr, G. L. Cabot 1.
Hardman Bros., Hope C. & R. Co. 1
Gherke, So. P. O. Co. 1.
Jarvis, Morris & Cain 3.
Gainer, Hope Gas Co. 1.
Huffman, Charlurs Oil Co. 4.
Bennett, Hope Gas Co. 1.
Rigs, 2; wells drilling, 7; total, 9.

WOOD COUNTY
Rigs
Rost, White Sand Oil Co. 3.
Wells Drilling
Stone, W. L. Stpehens O. Co. 3.
Smith-Goldish, Smith-Goldish 2.
King, So. P. O. Co. 8.
Rigs, 1; wells drilling, 3; total, 4.

PLEASANTS COUNTY
Wells Drilling
Elder, White & Rea 1.
Thistle heirs, Samuels & Gale 7.
Martin, Creek Oil Co. 1.
Yergin, J. S. Owens & Co. 1.
White, Fred D. Meister 15.
Storres, Lynch & Co. 2.
Bumgardner, A. O. D. Co. 4.
Farley, Carter Oil Co. 1.
Rigs, 0; wells drilling, 8; total, 8.

ROANE COUNTY
Rigs
Larch, O. F. O. Co. 19.
Craig, So. P. O. Co. 19.
Newhart, Heck Oil Co. 1.
Davis, Heck Oil Co. 3.
Seaman, Seaman Oil Co. 7.
Wells Drilling
Kelly, Brown Farm O. Co. 4.
Milhoan, R. D. Cummin 1.
Caruthers, Rex Pyramid O. Co. 1.
Rigs, 5; wells drilling, 3; total, 8.

JACKSON COUNTY
Rigs
Anderson, Fisher Oil Co. 3.

LINCOLN COUNTY
Wells Drilling
Pauley, A. C. Lawrence 7.

CLAY COUNTY
Rigs
King heirs, White Sand O. Co. 1.
Wells Drilling
Evans, Smathers & Grece 1.

PUTNAM COUNTY
Rigs
Wheeler, Logan Gas Co. 3.

KANAWA COUNTY
Rigs
Roane Land Co., Alleghany Oil Co. 2.
Fry, K. C. O. & G. Co. 1.
G. K. P. & C. Co., Owens B. & M. Co., Ward heirs, C. F. G. Co. 43.
Wells Drilling
G. K. P. & C. Co., Owens B. & M. Co. 14, 16.
Sunday Creek C. Co., U. F. G. Co. 13.
Coalburg C. Co., So. P. O. Co. 7.
Rigs, 5; wells drilling, 4; total, 9.

BOONE COUNTY
Rigs
Williams Coal Co., Pure Oil Co. 202.
C. R. M. Co., Owens B. & M. Co. 18.
Bedford, Owens B. & M. Co. 4.
Mullens, Owens B. & M. Co. 1
Wells Drilling
Williams Coal Co, Pure Oil Co. 198.
Williams Coal Co., Pure Oil Co. 220.
L. R. & P. Tract B, Pure Oil Co. 7.
L. R. & P. Tract B, Pure Oil Co. 9.
Coal R. M. Co., Owens B. & M. Co. 19, 20.
Bedford, Owens B. & M. Co. 2, 3.
Price, Owens B. & M. Co. 1.
Rigs, 4; wells drilling, 9; total, 13.

CABELL COUNTY
Wells Drilling
A. McCallister, Commercial Gas Co. 1.
M. McCallister Commercial Gas Co. 1.
Davis, Aetna O. & G. Co. 1.
Swann, Midway City Gas Co. 1.
Blackwood, Harshbarger O. & G. Co. 3.
McGhee, Herman Moore 2.
Rigs, 0; wells drilling, 6; total, 6.

LOGAN COUNTY
Wells Drilling
Hawkey-Freeman, So. P. O. Co. 1.

RALEIGH COUNTY
Rigs
Rowland Land Co., Fisher Oil Co. 4.

CENTRAL OHIO

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Fairfield ...	0	0	0	0	1	2	3
Knox	8	3	3	4	3	3	6
Ashland ...	3	0	0	3	5	13	18
Medina	6	0	4	2	9	21	30
Lorain	1	0	1	0	2	8	10
Wayne	15	8	7	8	15	30	45
Richland ..	0	0	0	0	0	1	1
Vinton	2	0	0	2	0	1	1
Hocking ...	2	0	0	2	2	4	6
Holmes	8	315	2	2	5	11	16
Coshocton .	0	0	0	0	2	0	2
Jackson	4	0	1	3	6	8	14
Athens	2	0	0	2	3	2	5
Meigs	0	0	0	0	1	0	1
Gallia	1	0	1	0	0	1	1
Cuyahoga ..	1	0	1	0	0	1	1
Lawrence ..	0	0	0	0	1	0	1
Ttl. Sept..	56	331	20	28	54	107	161
Ttl. Aug..	67	218	17	40	53	115	168
Difference	11	113	3	12	1	8	7

WELLS COMPLETED

KNOX COUNTY
Brown—G. E. Gunkel, E. Ohio Gas 2.. dry
G. A. Workman, E. Ohio Gas 1..... dry
J. H. Reed, E. Ohio Gas 1..... gas
Nyhart-Marvis, E. Ohio Gas 5..... dry
Chas. Scholes, E. Ohio Gas 6..... 8
Harrison—S. H. Ross, Preston Oil 15, 16 gas
Clay—Benj. Ross, Heisey Gas 2..... gas

Wells completed	8
Production	8
Dry	3
Gas	4

ASHLAND COUNTY
Hanover—G. Hamm, Logan Gas 2..... gas
Fred Feichter, Logan Gas 1..... gas
B. Heffelfinger, Ohio Fuel Gas 1.... gas

Wells completed	3
Gas	3

MEDINA COUNTY
Harrisville—John Baker, Logan Gas 2 gas
Liverpool—Mathias Keller, Ohio Fuel Gas 1 ..... dry
Chatham—W. M. Geisinger, Geo. S. Lacknett 3 ..... dry
G. W. Lewis, Ross Garmon 1 ..... dry
Litchfield—Frank Walter, Logan Gas 1 gas
York—E. A. Gunkleman, Ohio Fuel Gas 1 ..... dry

Wells completed	6
Dry	4
Gas	2

LORAIN COUNTY
Penfield—John Burke, East Ohio Gas 1 dry

WAYNE COUNTY
Franklin—G. White, Ohio Fuel Gas 1.. 2
Chippewa—Hullinger, East Ohio Gas 1 dry
Congress—Billheimer, Ohio Fuel Gas 1 gas
Milton—Fred Marty, East Ohio Gas 1.. gas
D. L. Frederick, J. L. Harpster & Co. 1 ..... dry
Wayne—J. Burkett, Ohio Fuel Gas 1.. dry
Ingard Bros., Pittsburgh-Wooster Oil 2 ..... dry
E. J. Moore, Frick Gas 1 ..... dry
M. Walmer, Klise-Eckstein-McCaan Oil 1 ..... dry
Cannan—J. Kissinger, Logan Gas 1 .... gas
L. Lewis, Ohio Fuel Gas 1 ..... gas
H. H. Keck, Ohio Fuel Gas 2 ..... dry
C. R. Sykes, Ohio Fuel Gas 1 ..... gas
Batholomew, Ohio Fuel Gas 1 ..... gas
F. & M. Snell, G. C. Miracle 1..... 1
Schulenburger, H. Elkhorn 3 1
Horr-Warner, Mayers & Co. 1 ..... gas
Plain—G. Bowers, Logan Gas 1..... gas

Wells completed	11
Production	9
Dry	1
Gas	9

VINTON COUNTY
Harrison—Hertenstein, Ohio Fuel Gas 2 gas
Jackson—E. W. McClure, Ohio Fuel Gas 1 ..... gas

Wells completed	1
Gas	1

HOCKING COUNTY
Benton—J. L. Mauk, Logan Gas 2 .... gas
A. L. Unger, Logan Gas 2..... gas

Wells completed	2
Gas	2

HOLMES COUNTY
Ripley—Q. B. Gilson, Central Ohio Gas 1 ..... gas
Monroe—L. G. Finney, Central Ohio Gas 1 125
C. E. Carpenter, Central Ohio Gas 1 16
Hardy—Jac. Uhl & Son, East Ohio Gas 4 16
Lewis Conn, Klise-Eckstein-McCaan Oil 1 10
Washington—E. D. Young, Logan Gas 1 gas
F. Heffelfinger, Logan Gas 2 ..... dry
W. Baldner, East Ohio Gas 1..... dry

Wells completed	1
Production	115
Dry	1
Gas	1

JACKSON COUNTY
Washington—S. B. Tripp, Ohio Fuel Gas 2 ..... gas
Thos. Hogan, Ohio Fuel Gas 2..... gas
McMillan, Ohio Fuel Gas 1 ..... gas
Milton—Jesse Rice, Ohio Fuel Gas 1.. dry

Wells completed	4
Dry	1
Gas	1

ATHENS COUNTY
Carthage—J. G. & M. Dye, Logan Gas 1 ..... gas
B. C. Dye, Ohio Fuel Gas 2 ..... gas

Wells completed	1
Gas	1

GALLIA COUNTY
Perry—J. E. Snyder, Ohio Fuel Sup. 1 dry

CUYAHOGA COUNTY
South Park—Julius Stark, Wiser Oil 1 dry

FAIRFIELD COUNTY
Rigs
Rush Creek—Alta Barr, Ohio Fuel Gas 1.
Wells Drilling
Walnut—M. M. Watson, Ohio Fuel Gas 1.
M. F. Taylor, Logan Gas 4.
Rigs, 1; wells drilling, 2; total, 3.

KNOX COUNTY
Rigs
Brown—Gustave-Snively, East Ohio Gas 1.
G. E. Gunkel, East Ohio Gas 3.
L. L. Reed, East Ohio Gas 1.
Wells Drilling
Brown—Gustave-Snively, East Ohio Gas 1.
Clay—Benj. Ross, Heisey Gas 3.
J. F. Dodd, Bell Bros. 2.
Rigs, 3; wells drilling, 3; total, 6.

ASHLAND COUNTY
Rigs
Hanover—Wm. Fisher, Ohio Fuel Gas 1.
J. F. Jones, Ohio Fuel Gas 2.
Rosa Derr, Logan Gas 2.
Mohican—E. E. Sowers, Logan Gas 2.
Orange—Wm. Montieth, Logan Gas 3.
Wells Drilling
Hanover—Mary H. Sellers, Logan Gas 1.
J. Techantz, Logan Gas 1.
J. B. Date, East Ohio Gas 3, 4.
K. Ackerman, East Ohio Gas 1.
Wm. Black, Ohio Fuel Gas 1.
Jac. Sellers, Ohio Fuel Gas 1.
Mohican—J. & M. Lybarger, Logan Gas 1.
C. A. Pearce, Logan Gas 1.
Orange—Eliza Berkley, Logan Gas 1.
O. H. Vance, Logan Gas 1.
Alex Phillips, Logan Gas 3.
Jackson—H. Weiler, Ohio Fuel Gas 1.
Rigs, 5; wells drilling, 13; total, 18.

MEDINA COUNTY
Rigs
Liverpool—Andy Nilliges, Logan Gas 2.
Lafayette—G. W. Carlson, Ohio Fuel Gas 1.
Chatham—C. G. Chapman, East Ohio Gas 1.
York—G. N. Hazen, West & Locke 2.
Geo. Acker, Ohio Fuel Gas 3, 4.
P. H. Thompson, Hulse & Koontz 3.
Henry C. Speith, Logan Gas 3.
Chas. Wolfe, Central Ohio Gas 2.
Wells Drilling
Harrisville—J. H. Crawford, Hulse & Koontz 1.
Liverpool—Wm. Niles, Logan Gas 1.
F. N. Dietrick, Logan Gas 1.
C. F. Moehler, Ohio Fuel Gas 1.
Lafayette—A. F. Collins, Ohio Fuel Gas 1.
Chatham—A. M. Buchanan, Bricker Bros. 1.
C. G. Chapman, Vale Oil 35.
Medina—Wm. Schaber, Ohio Fuel Gas 1.
Litchfield—Adney Jenkins, Hulse & Koontz 1.
York—E. H. Farion, Logan Gas 2.
G. F. Gunkleman, Logan Gas 1.
Allen N. Weiss, Logan Gas 1.
Myra Brojan, Logan Gas 2.
Fred Kemp, Logan Gas 1.
H. G. Wolf, Logan Gas 1.

Fred Todd, Ohio Fuel Gas 2.
Geo. Acker, Ohio Fuel Gas 2.
J. A. Wolfe, Ohio Fuel Gas 3.
A. M. Hoeckert, Ohio Fuel Gas 2.
Chas. Wolfe, Central Ohio Gas 1.
Geo. Starr, Central Ohio Gas 1.
Rigs, 9; wells drilling, 21; total, 30.

LORAIN COUNTY
Rigs
Grafton—F. F. Schaffer, East Ohio Gas 3.
Avon Lake Village—F. J. Krebs, J. W. Cushing 2.

Wells Drilling
Penfield—L. & C. Wolf, C. W. Schaffer 2, 3, 4, 7, 8.
Grafton—E. F. Schaffer, East Ohio Gas 2.
E. C. & E. S. Rice, Ohio Fuel Gas 1.
Lagrange—Al. Bringe, Ohio Fuel Gas 1.
Rigs, 2; wells drilling, 8; total, 10.

WAYNE COUNTY
Rigs
Congress—J. M. Marsh, John Gaut & Co. 1.
John Ferguson, Ohio Fuel Gas 1.
Wayne—L. Durstin, Logan Gas 1.
Cannan—J. W. Scholl, Logan Gas 1.
W. & A. Notestone, Logan Gas 3.
J. & C. Irwin, Logan Gas 2.
T. A. Armstrong, Logan Gas 3.
C. & L. Kollert, Logan Gas 1.
R. S. Nosker, Central Ohio Gas 1.
A. Smith, Brinkerhoff & Co. 2.
R. C. Grander, Bowers & Co. 1.
S. Whonsettler, Bert Hardter & Co. 1.
D. V. Rowe, Ohio Fuel Gas 2.
Plain—Kate Brown, East Ohio Gas 2.
C. Hardesty, East Ohio Gas 1.

Wells Drilling
Wooster—W. M. Orr, Ohio Oil 1.
East Union—A. P. Walter, Logan Gas 1.
Congress—J. A. Lucas, Logan Gas 2.
Milton—Dan Graber, East Ohio Gas 1.
Wayne—S. McCoy, East Ohio Gas 1.
C. W. Yates, Ohio Fuel Gas 1.
M. M. Zimmerman, Ohio Fuel Gas 1.
F. Pressler, Logan Gas 1.
C. L. Alexhouse, Logan Gas 1.
W. A. Taylor, Klise-Eckstein-McCann Oil 2.
Martin Sole, Klise-Eckstein-McCann Oil 1.
B. Carmony, Burtner, Morgan & Co. 1.
Cannan—A. A. Fetzer, Logan Gas 2.
O. G. Pinkley, Logan Gas 2.
V. Everwine, Ohio Fuel 1.
Fred H. McAfee, Ohio Fuel 1.
T. Rennecker, Ohio Fuel 2.
S. C. Jackson, Ohio Fuel 1.
F. J. Lehman, Ohio Fuel 1.
W. F. Funk, Logan Gas 1.
J. H. Blocher, Klise-Eckstein-McCann Oil 1.
F. & E. Jordan, Central Ohio Gas 1.
E. A. Jordan, Warn & Jordan 1.
F. Fike, Brinkerhoff & Co. 1.
Bryon Brady, Caskey & Peake 1.
O. G. Pinkley, Ohio Fuel Gas 1.
Plain—C. O. Ports, East Ohio Gas 3.
D. Finney, Logan Gas 2.
J. J. Risser, Logan Gas 3.
B. Carmony, Burton, Morgan Co. 1.
Rigs, 15; wells drilling, 30; total, 45.

RICHLAND COUNTY
Wells Drilling
Troy—Thos. Dunshee, Lexington O. & G. 1.

VINTON COUNTY
Wells Drilling
Richland—H. M. Whitcraft, Ohio Fuel Gas 1.

HOCKING COUNTY
Rigs
Benton—J. S. & C. Cain, Logan Gas 1.
C. W. Davis, Ohio Fuel Gas 1.

Wells Drilling
Benton—G. & A. Schall, Ohio Fuel Gas 1.
Elmer Pettitt, Ohio Fuel Gas 2.
C. H. Rathbone, Logan Gas 1.
J. L. Mauk, Logan Gas 3.
Rigs, 2; wells drilling, 4; total, 6.

HOLMES COUNTY
Rigs
Ripley—J. T. Tschantz, Central Ohio Gas 4
E. & R. Scott, East Ohio Gas 2.
Monroe—H. E. McMillan, Central Ohio Gas 1
Hardy—Jacob Uhl, East Ohio Gas 2.
Washington—W. H. Heffelfinger, Logan Gas 1.

Wells Drilling
Ripley—B. W. Todd, Logan Gas 1.
L. C. Sprawls, Ohio Oil 1.
J. B. Williams, Central Ohio Gas 2.
J. B. Shoup, Ohio Fuel Gas 1.
Al Weimurg, East Ohio Gas 1.
Monroe—J. A. Baker, East Ohio Gas 1.
Hardy—J. Gindelsperger, Central Ohio Gas 1.
Washington—Mgdt. Lozier, Logan Gas 1
Prairie—Avery Metcalf, East Ohio Gas 1.
E. P. Nowels, East Ohio Gas 1.
Sam Lefever, Ohio Oil 2.
Rigs, 5; wells drilling, 11; total 16.

COSHOCTON COUNTY
Rigs
Newcastle—Martin Mizer, Logan Gas 1.
Wm. Johnson, Logan Gas 1.
Rigs, 2.

JACKSON COUNTY
Rigs
Washington—Steve Tripp, Ohio Fuel Gas 2, 3.
Minnie Walker, Ohio Fuel Gas 3.
Isaac Mates, Ohio Fuel Gas 1.
Franklin—Wm. Steele, Ohio Fuel Sup. 2.
Lick—Grafton McGhee, Ohio Fuel Gas 1.

Wells Drilling
Washington—S. B. Tripp, Ohio Fuel Gas 2.
J. W. Harberger, Ohio Fuel Gas 3, 4.
Coal—S. E. Stephenson, Ohio Fuel Sup. 1.
W. E. Dixon, Ohio Fuel Sup. 1.
Franklin—F. H. Johnson, Ohio Fuel Sup. 1.
Lick—J. C. Poor, Ohio Fuel Gas 3.
A. R. Peters, Ohio Fuel Gas 1.
Rigs, 6; wells drilling, 8; total, 14.

ATHENS COUNTY
Rigs
Carthage—M. V. Barnhardt, Ohio Fuel Sup. 1.
W. & M. Dye, Logan Gas 2.

Wells Drilling
Carthage—Elanor Dunlavey, Ohio Fuel Sup. 1.
A. J. Russell, Logan Gas 4.
Amos—W. R. Phillips, Ohio Fuel Sup. 1.
Rigs, 2; wells drilling, 3; total, 5.

MEIGS COUNTY
Rigs
Salsbury—A. J. Smith, Ohio Fuel Sup. 1.

GALLIA COUNTY
Wells Drilling
Cheshiro—P. H. Stenberger, Ohio Fuel Sup. 1.

CUYAHOGA COUNTY
Wells Drilling
Brooklyn—H. J. Huey, East Ohio Prod. & Refg. 1.

LAWRENCE COUNTY
Rigs
Washington—Levi P. York, Ohio Fuel Sup. 1.

LIMA FIELD

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Wood	16	355	0	1	1	13	19
Hancock	10	169	0	0	2	8	10
Allen	5	107	0	0	0	6	6
Auglaize	3	45	0	0	0	7	7
Sandusky	0	0	0	0	1	1	2
Mercer	15	188	2	0	0	15	15
Van Wert	1	12	0	0	0	4	4
Seneca	3	300	0	0	0	6	6
Lucas	1	3	0	0	0	2	2
Ottawa	4	35	0	0	0	3	3
Darke	10	192	0	0	0	8	8
Hardin	2	10	0	1	0	0	0
Paulding	0	0	0	0	0	1	1
Michigan	1	0	1	0	0	2	2
Ttl. Sept.	71	1,416	3	2	4	81	85
Ttl. Aug.	84	1,442	6	2	6	93	99
Difference	13	26	3	0	2	12	14

WOOD COUNTY
Wells Completed
Montgomery—J. J. Amos, Nonnemaker & Co. 8 5
Freedom—E. A. Carman, Ohio Oil 25 5
Plain—Brown Bros., Ohio Oil 10 8
A. J. Hartman, Allen Oil 5 8
A. J. Hartman, Allen Oil 6 6
Henry—Fannie Peters, Ohio Oil 18 20
B. A. Lawrence, Ohio Oil 37 100
Bloom—D. S. Clark, The Heacock Oil 17 100
G. E. Grant, Geo E. Grant 3 3
F. B. Loose, Ohio Oil 1 ..... abd
Liberty—S. F. Hodgman, W. E. Donnelly 1 3
Dan Mercer, Ohio Oil 7, 40 ..... abd
C. C. LaPlant, Marshall & McClure 1 30
Portage—C. Potter, Lyman Oil 1 5
C. Potter, Lyman Oil 4 20
Milton—O. W. Chapman, Hulse & Koontz 2 12
Lake—Emil Berndt, C. F. Zeising & Co. 1 30
Center—M. C. Dimick, Lincoln-Dirlin Oil 1 ..... gas

Wells completed 16
Production 355
Gas 1
Abandoned 3

HANCOCK COUNTY
Allen—I. Spitler, Ohio Oil 17 2
Liberty—Redmond, Titan Oil 4 2
D. Morehead, Morehead & Co. 1 10
Pleasants—J. W. Dillinger, Bath Township Oil 1 10
Union—C. W. Solt, Beatty-Nickle Oil 11 5
Fred Adams, Vanlue Oil 3 3
Eagle—J. H. Haley, B. Porter & Co. 14 40
Lem Aurand, Porter & Hovis 8 50
E. M. Crozier, J. M. Steen & Co. 27 2
J. McClelland, Ohio Oil 13 45

Wells completed 10
Production 169

ALLEN COUNTY
Bath—E. W. Prowant, C. A. Peavy & Co. 4 25
Spencer—W. McCracken, Ohio Oil 6 12
Frank Etzgan, Federal Oil 1 45
Marion—John Lucius, Federal Oil 1 10
Phil Hiltner, Federal Oil 1 15

Wells completed 6
Production 107

AUGLAIZE COUNTY
Douchouquet—J. A. Arthur, Ohio Oil 2 ..... abd
Logan—E. B. Springle, Chas. Mertz & Co. 1 20
J. W. Haas, Franklin Oil 3 5
W. Brincefield, Loeber & Work 2 20
Salem—C. F. Benton, Moore & Co. 5 ..... abd
St. Marys—C. P. McKee, Ohio Oil 11 ..... abd

Wells completed 3
Production 45
Abandoned 3

SANDUSKY COUNTY
Scott—M. Swope, Onsel Bros. 13, 15, 16, 17, 18, 20, 21 ..... abd

Wells abandoned 7

MERCER COUNTY
Recovery—Newcomer, W. F. Newcomer & Co. 4 15
A. Fecher Hers, A. W. Neely & Co. 2 15
Geo. Miller, Lowery & Co. 1 20
Geo. Millery, Lowery & Co. 2 30
Geo. Miller, Lowery & Co. 3 20
Gibson—B. Brunswick, Weiderman & Smith 2 ..... dry
John Koester, Neely-Clover Oil 3 .. 5
J. Schmidt, Logan Oil 1 4
J. Schmidt, Logan Oil 2 4
J. Brunswick, Logan Oil 1 15
W. Mieuring, Congo Oil & Gas 3.... 4
Hopewell—B. Heilsworth, June Oil 2.. 1
S. M. Brookhart, Bodkin & Co. 1 .... dry
Union—C. Griffin, Watson Oil 2 ..... abd
Liberty—Radabaugh-Vining, Liberty Oil 4 40
Jos. Agler, E. A. Kuhns & Co. 1, 3, 5, 6 ..... abd
Franklin—S. Evans, Ed. Anderson & Co. 1 15

Wells completed 15
Production 188
Dry 3
Abandoned 2

VAN WERT COUNTY
Jennings—John Mueller, John Mueller 6 12
John Mueller, John Mueller 1 ..... abd
Willshire—J. Medaugh, E. A. Kuhns & Co. 2, 4, 5 ..... abd

Wells completed 1
Production 12
Abandoned 4

SENECA COUNTY
Eden—S. Boroff, Sun Co. 3 40
H. H. Seiple, Sun Co. 1 250
Jackson—Neil Keifer, J. W. Fox 12.... 10

Wells completed 3
Production 300

LUCAS COUNTY
Oregon—Frank Seyan, W. W. Farnsworth 21 3

OTTAWA COUNTY
Harris—Mary Scott, Zorn-Hornung Co. 5 12
Belle Clayrn, Zorn-Hornung Co. 4.... 7
E. Dietermyer, Harris Oil 5 8
H. Dietermyer, Harris Oil 4 8

Wells completed 4
Production 35

DARKE COUNTY
Mississinewa—Geo. Peffers, McGinley & Hargis 6 30
J. Schmidt, Iliendo Oil 4 4
Chas. Miller, D. P. Earl Trus. 6.... 35
B. Fullenkamp, Dillbone & Co. 1.... 1
J. Miller, E. G. & Jas. Henderson 7 35
Allen—J. T. Patton, Mondarke Oil 6.. 20
J. T. Patton, Mondarke Oil 7 20
J. T. Patton, Mondarke Oil 8 40
H. Seifring, Faulkner & Brown 5... 2
H. Seifring, Faulkner & Brown 6.... 5

Wells completed 10
Production 192

HARDIN COUNTY
Marion—A. & G. Shadley, Cottonwood O. & G. 1 10
M. McGuffey, Randall, Holmes & Co. 1 gas

Wells completed 2
Production 10
Gas 1

MICHIGAN
LAPEER COUNTY
Brown—Unknown 1 ..... dry

WOOD COUNTY
Rigs
Plain—Pinert-Munn, Paragon Ref. 24.

Wells Drilling
Plain—G. Goodenough, Hulse & Koontz 1.
J. H. Haley, M. B. Chidester 13.
A. J. Schauwecker, Ohio Oil 5.
W. C. Blysone, R. C. Shuler & Co. 4.
Henry—John Cahill, Starr Oil 2.
Paul Mayville, L. D. Langmade 3.
Bloom—F. B. Loose, Western Ohio Oil 2.
F. B. Loose, Ohio Oil 2.
D. S. Clark, The Heacock Oil 18.
Liberty—Anna Phillips, A. F. Stockwell 4
Webster—W. R. Melcher, Flaherty Oil 3.
W. Oberdecker, Johnson & Grolle 2.
Lake—Wm. Line, Troy O. & G. 10.
Emil Berndt, C. F. Zeising & Co. 2.
Perrysburg—Geo. Dauer, John E. Walton 1.
Perry—C. R. & J. F. Bresler, Dennis Bros. 2.
Washington—O. Cummings, Dunbridge Oil 1.
Middleton—Hugh Stewart, Hugh Stewart 1.
Wells drilling, 18.

HANCOCK COUNTY
Rigs
Pleasants—Cain & Henning, Bath Township Oil 2.
Union—Phil Gehron, Beatty-Nickle Oil 8.
Rigs, 2.

Wells Drilling
Allen—A. Kuhlman, E. J. Pool Estate 10.
E. C. Showman, Dave King Jr., & Co. 17.
Liberty—E. E. Spoon, Spoon & Co. 1.
Union—Fred Adams, Vanlue Oil 4.
Eagle—J. McClelland, B. Porter & Co. 1.
Lem Aurand, Porter & Hovis 9.
H. P. Smith, Fuller & Co. 12.
Biglick—J. D. Moore, Cochran & Moore 1.
Wells drilling, 8.

ALLEN COUNTY
Wells Drilling
Bath—E. W. Prowant, C. A. Peavey & Co. 5.
Spencer—R. B. Harbison, The New Gas Co. 1.
Mathias Etzgen, Indian Oil 3.
Shawnee—J. W. Sellers, Robinson & Co. 1
Marion—Fred Miller, Federal Oil 1.
Phil Heltner, Federal Oil 2.
Wells drilling, 6.

AUGLAIZE COUNTY
Wells Drilling
Douchouquet—Meckling & Co., Dan Borern 4.
Logan—Chas. Hines, Geo. D. Whipple 1.
G. Foltz, Shappell & Whipple 1.
F. Daniels, Loeber & Work 1.
J. H. Gochenour, Lang & Kirk 16.
L. V. Bowersock, Wesley Sprague 5.
Moulton—John Butcher, Chas. Mertz & Co. 2.
Wells drilling, 7.

SANDUSKY COUNTY
Rigs
Washington—J. C. Bergman, Paragon Ref. 6.

Wells Drilling
Scott—Isaac Vandersoll, Adams O. & G. 11.

MERCER COUNTY
Wells Drilling
Recovery—Newcomer, M. F. Newcomer 5.
Granville—John Schlarman, Brandt & Co. 1.
S. Lauber, Thompson & Co. 3.
Gibson—Mike Nrymyer, Weiderman & Smith 1.
Mose Pinter, Neely-Clover Oil 1.
John Teney, Neely-Clover Oil 1.
Butler—B. Dues, Mace, Day & Young 1.
Hopewell—Perry Miller, June Oil 4.
J. Tilton, June Oil 1.
Washington—H. Wellis, McClure & Co. 1.
L. Adams, McClure & Co. 1.
Liberty—Brehn Bros., Liberty Oil 2.
Radebaugh-Vining, Liberty Oil 5, 6.
W. H. High, Boyd & Stelzer 1.
Wells drilling, 15.

VAN WERT COUNTY
Wells Drilling
Jennings—J. Mueller, John Mueller 7.
York—J. M. Strother, C. E. Elliott 1.
Mgdt. Miller, Zeigen & Lawrence 3.
Liberty—O. Clouse, B. Y. J. Oil 3.
Wells drilling, 4.

SENECA COUNTY
Wells Drilling
Eden—H. H. Seiple, Sun Co. 2.
W. S. Burns, Sun Co. 6.
Clinton—Ida Geyer, Geyer Bros. 2.
T. C. Boes, E. R. Edson & Son 1.
Pleasants—T. B. Toombs, D. R. McCray & Co. 6.
Frank Hoover, E. R. Edson & Son 1.
Wells drilling, 6.

LUCAS COUNTY
Wells Drilling
Adams—R. E. Farnsworth, Farnsworth & Co. 1.
Monclova—W. Black, Swan Creek O. & G. 2.
Wells drilling, 2.

OTTAWA COUNTY
Wells Drilling
Harris—Belle Clay, Zorn-Hornung Oil 5.
N. J. Heney, Scott Oil 2.
Carl Blausey, T. F. Lewis & Co. 2.
Wells drilling, 3.

DARKE COUNTY
Wells Drilling
Mississinewa—Babe Bowers, Pyramid Oil 1.
G. W. Ream, Pyramid Oil 4.
C. R. Stickleman, M. P. Colt 6.
John Miller, E. G. & Jas Henderson 8.
York—Feltman, Pyramid Oil 1.
Allen—Geo. Gerlock, Mondarke Oil 10.
Wabash—Coons, Kinney & Co. 1.
Patterson—C. W. Bowman, M. P. Colt & Co. 1.
Wells drilling, 8.

PAULDING COUNTY
Wells Drilling
Brown—Putnam County C. & R. 1.

MICHIGAN
JACKSON COUNTY
Wells Drilling
Napoleon—Silvers, Jackson County O. & G. 1.

MONROE COUNTY
Dundee—Frank Roe, Jackson County O. & G. 1.

ILLINOIS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Clark	1	65	0	0	0	4	4
Cumberland	1	0	1	0	0	1	1
Crawford	2	0	2	0	0	3	3
Lawrence	3	125	0	0	0	3	3
Marion	1	0	1	0	0	0	0
Clinton	2	0	2	0	0	0	0
Monroe	1	4	0	0	0	4	4
Jasper	0	0	0	0	0	1	1
Coles	0	0	0	0	0	1	1
Wabash	3	0	3	0	4	1	5
Jackson	2	0	0	2	0	2	2
Jefferson	0	0	0	0	0	1	1
Ttl. Sept.	16	194	9	2	4	21	25
Ttl. Aug.	26	340	8	3	7	26	33
Difference	10	146	1	1	3	5	8

WELLS COMPLETED
CLARK COUNTY
Martinsville—Susannah Morgan, Van Orden & Co. 3 65

CUMBERLAND COUNTY
Crooked Creek—J. Johnson, Myers & Co. 1 ..... dry

CRAWFORD COUNTY
Oblong—J. A. York, Ohio-Northern Oil 26 ..... dry
Prairie—E. Wilburt, Watson Oil 4 .... dry

Wells completed 2
Dry 2

LAWRENCE COUNTY
Dennison—J. F. Snyder, Associated Prod. 18 100
E. H. Shuey, Ohio Oil 15 5
T. I. Gould, Ohio Oil 33 ..... abd
Bridgeport—H. C. Cullison, Ohio Oil 11 20
Petty—E. C. Heck, Ohio Oil 1 ..... abd

Wells completed 3
Production 125
Abandoned 2

MARION COUNTY
Sandoval—E. Rhones, Alspaugh & Co. 1 dry

CLINTON COUNTY
Brookside—F. Houseman, Petro O. & G. 1 ..... dry
Gerhlhausen, Alspaugh & Co. 1 .... dry

Wells completed 2
Dry 2

MONROE COUNTY
Waterloo—Dena Acker 81, Kaskaskia Oil 6 4

WABASH COUNTY
Wabash—S. C. Couch, Ilan Bowers & Co. 1 ..... dry
Friendsville—F. M. Zeigler, Hartman & Parrott 1 ..... dry
Mary Wood, Geo. Porter & Co. 1 .... dry

Wells completed 3
Dry 3

JACKSON COUNTY
Bradley—Carter, Mid-Egypt O. & G. 6 gas
Garver, Mid-Egypt O. & G. 1 .... gas

Wells completed 2
Gas 2

CLARK COUNTY
Wells Drilling
Parker—Elder Lee, Cincho Oil 4.
Martinsville—Chas. Lowe, McArthur & Co. 1.
J. W. Atkins, Ohio Oil 9.
J. D. Nichols, William Carper 1.
Wells drilling, 4.

CUMBERLAND COUNTY
Wells Drilling
Sumpter—J. Brewer, Illinois Oil 1.

CRAWFORD COUNTY
Wells Drilling
Oblong—Wm. Wall, Seth McGee 23.
Robinson—N. C. Boyd, Fred Burns & Co. 3.
Prairie—E. Wilburt, Watson Oil 5.
Wells drilling, 3.

LAWRENCE COUNTY
Wells Drilling
Dennison—G. L. Barnett, Ohio Oil 11.
L. M. Seed, Big Four O. & G. 18.
Bond—L. O. Miller, J. D. Toomey 1.
Wells drilling, 3.
MONROE COUNTY
Wells Drilling
Waterloo—Dena Acker, 81-A, Kaskaskia Oil 7.
Dena Acker 40-A, Henry Schneider & Co. 5.
C. Rueck, Tucker & Co. 5.
C. Wismuth, East St. Louis Drg. 8.
Wells drilling, 4.
JASPER COUNTY
Wells Drilling
Hunt City—O. H. Madden, Grant Jessup 1.
WABASH COUNTY
Rigs
Wabash—A. Hosmer, Joe Young & Co. 1.
G. D. Smith, Joe Young & Co. 6.
Della Wright, Hartman & Parrot 4.
Friendsville—C. Schrader, Sharon Price & Co. 1.
Wells Drilling
Wabash—E. K. Adams, Harry E. Risley & Co. 2.
Rigs, 4; wells drilling, 1; total, 5.
JACKSON COUNTY
Wells Drilling
Bradley—McBride, Mid-Egypt O. & G. 1.
Geberding, Mid-Egypt O. & G. 2.
Wells drilling, 2.
JEFFERSON COUNTY
Wells Drilling
Pendleton—R. I. Esters, Opdyke Oil 1.

INDIANA FIELD

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Wells	1	15	0	0	0	0	0
Jay	9	485	0	1	0	18	18
Adams	0	0	0	0	0	1	1
Grant	0	0	0	0	0	1	1
Gibson	1	3	0	0	1	7	8
Pike	0	0	0	0	0	3	3
Sullivan	3	0	3	0	0	3	3
Knox	1	15	0	0	0	0	0
Greene	0	0	0	0	0	1	1
Ttl. Sept..	15	518	3	1	1	34	35
Ttl. Aug..	27	1,132	7	1	2	33	35
Difference	12	614	4	0	1	1	0

WELLS COMPLETED
WELLS COUNTY
Liberty—J. K. Davis, Lewis Oil 9 15
Nottingham—W. H. Chenoweth, Ohio Oil 1, 2, 3, 4, 5, 6 .... abd
L. J. Beaver, Ohio Oil 1, 2, 3 .... abd
Chas. Shannon, Ohio Oil 1, 2, 3 .... abd

Wells completed 1
Production 15
Abandoned 12

BLACKFORD COUNTY
Harrison—A. Hawkins, Ohio Oil 5, 6, 8, 9, 10, 11, 12, 13, 15 .... abd
H. H. Bennett, Ohio Oil 2, 3, 7 .... abd

Wells abandoned 12

JAY COUNTY
Bear Creek—Perry Orr, Smethers & Co. 2 3
W. McMichaels, Smithers & Co. 3 12
Pike—Kemp, L. E. Howard Oil 3 40
Carey, Bourne & Edmundson 1 60
A. Ritenour, Masters & Reese 9 75
A. Ritenour, Masters & Reese 10 120
C. Rathbun, Masters, Bundy & Co. 4 150
Penn—Davis Bros., Manor, Stewart & Jones 9 25
Wayne—Dr. P. W. Mincke, Portland Parties 1 .... gas
Jackson—A. Lupton, McCarty & McCarty 1, 3 .... abd
J. Park, Karney & Co. 2 .... abd
C. L. Callahan, J. J. Adams 2 .... abd

Wells completed 9
Production 485
Gas 1
Abandoned 4

ADAMS COUNTY
Hartford—Wm. Glendenning, Ohio Oil 2 .... abd
GRANT COUNTY
Jefferson—J. Jones, Robison & Duckwall 1, 2 .... abd
C. Henline, Robison & Duckwall 3 .... abd
A. D. Mittank, A. D. Mittank & Co. 1, 3, 4, 5 .... abd

Wells abandoned 7

GIBSON COUNTY
Center—E. Whiting, Murphy Oil 2 3
SULLIVAN COUNTY
Fairbanks—J. T. Osburn, Jas. T. Osburn 1 .... dry
Hamilton—Art Hunt, Fred Bays 1 .... dry
H. S. Shields, Billman & Co. 1 .... dry

Wells completed 3
Dry 3

KNOX COUNTY
Harrison—Hamilton Like, Intuck Oil 5 15
JAY COUNTY
Wells Drilling
Bear-Creek—S. Saunders, Sub-Trenton Oil 1.
J. & C. Jeffries, General Oil Prd. Corp. 2.
Pike—J. Redmond, Redmond & Co. 8.
Moon, Moon & Co. 1.
Kemp, Arnold & Co. 1.
A. Ritenour, Masters & Reese 11, 12.
C. Rathbun, Masters, Bundy & Co. 5, 6
Obryan, Belyard & Co. 2.
Obryan, Omar Oil 13.
Penn—Davis Bros., Manor, Stewart & Jones 10.
A. Hetzler, C. F. Willson & Co. 1.
Madison—Gillinger, J. E. Thompson 1.
Iliff, Meusel & Co. 1.
Kemp, Anderson & Co. 1.
Kuder, John A. Bell 1.
South Noble—Cull, Wilmott & Thompson 1.
Rigs, 0; wells drilling, 18; total, 18.
ADAMS COUNTY
Wells Drilling
Blue Creek—C. J. Jones, Rockford Oil 2.
GRANT COUNTY
Wells Drilling
Pleasants—R. Hildermand, Nickelson & Co. 2.
GIBSON COUNTY
Rigs
White River—F. A. White, Perry Tichenour & Co. 1.
Wells Drilling
Washington—C. Dawson, Lobowitz & Co. 2.
Ira Seifers, Lynch & Co. 1.
Patoka—W. Yarger, Ohio Oil 1.
Center—F. Wilderman, Young & Co. 1.
W. Van Meter, Gray & Co. 1.
E. Whiting, Murphy Oil 3.
White River—W. F. Chapman, Unknown, 1, Rigs, 1; wells drilling, 7; total, 8.
PIKE COUNTY
Wells Drilling
Madison—O. Dougen, H. E. Merrifield. Trustee 1.
Monroe—S. Byrnett, Consolidated O. & Dev. 1.
Clay—John Ford, Bement-Indian Ref. 1.
Rigs, 0; wells drilling, 3; total, 3.
SULLIVAN COUNTY
Wells Drilling
Turman—A. A. Poe, H. & S. O. & G. 6.
W. H. Huff, Fred Bays 1.
Thos. Carrithers, Dugger Parties 1.
Rigs, 0; wells drilling, 3; total, 3.
GREENE COUNTY
Wells Drilling
Stockport—Henry Golden, Indian Ref. 1.

W. KENTUCKY-TENN.

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Wayne	2	10	1	0	0	4	4
Powell	1	15	0	0	0	9	9
Estill	1	2	0	0	0	6	6
Morgan	0	0	0	0	0	1	1
Lee	1	2	0	0	0	4	4
Lawrence-Johnson	9	299	1	0	0	21	21
Johnson-Magoffin	35	387	2	4	0	40	40
Allen	31	425	9	0	0	28	28
Warren	32	455	14	1	0	40	40
Barren	2	25	0	0	0	21	21
Simpson	6	142	3	0	0	10	10
Cumberland-Monroe	12	2,255	6	1	0	32	32
Clinton	0	0	0	0	0	6	6
Russell	0	0	0	0	0	5	5
Hancock	5	25	2	0	0	5	5
Ohio	0	0	0	0	0	4	4
Hopkins	0	0	0	0	0	3	3
Owsley	0	0	0	0	0	2	2
Metcalf	5	5	0	4	0	5	5
Henderson	0	0	0	0	0	2	2
Greenup	1	10	0	0	1	0	1
Crittenden	0	0	0	0	0	1	1
Calloway	0	0	0	0	0	2	2
Union	0	0	0	0	0	1	1
Breathitt	0	0	0	0	0	1	1
Montgomery	0	0	0	0	0	2	2
Rowan	0	0	0	0	0	1	1
Grayson	0	0	0	0	0	1	1
Elliott	1	10	0	0	0	3	3
Laurel	1	100	0	0	0	2	2
Hardin	1	8	0	0	0	1	1
Muhlenburg	0	0	0	0	0	1	1
Floyd	2	10	0	1	0	0	0
Graves	0	0	0	0	0	1	1
Pike	0	0	0	0	0	1	1
Tennessee	1	0	1	0	0	21	21
Mississippi	1	0	1	0	0	19	19
Alabama	0	0	0	0	0	13	13
Georgia	1	0	1	0	0	2	2
Ttl. Sept..	151	4 185	41	11	1	320	321
Ttl. Aug..	107	4,817	31	2	0	215	215
Difference	44	632	10	9	1	105	106

WAYNE COUNTY
Wells Completed
Monticello—E. L. Kennedy, C. E. Daugherty & Co. 1 .... dry
H. & B. Upchurch, J. H. Johnson & Co. 5 10

Wells completed 2
Production 10
Dry 1

POWELL COUNTY
Slade—Robt. Boyd, Petroleum Exploration 6 15
ESTILL COUNTY
Irvine—Sam Rogers, Beckett & Smith 10 2
LEE COUNTY
Beattyville—H. K. Gray, Petroleum Exploration 2 2
LAWRENCE-JOHNSON COUNTIES
Louisa—D. V. Skaggs, Union Gas & Oil 7 4
Felix Fyffe, Union Gas & Oil 5 15
Levisa Skaggs, Union Gas & Oil 12 35
Wm. Lester, Union Gas & Oil 3 10
J. M. Fyffe, Union Gas & Oil 13 50
Sanford Lyon, Union Gas & Oil 20 75
L. H. Skaggs, Union Gas & Oil 3 10
Proctor Sparks, Union Gas & Oil 15 100
Con Rice, Pyramid Oil 1 .... dry

Wells completed 9
Production 299
Dry 1

JOHNSON-MAGOFFIN COUNTIES
Completions
Paintsville—Tollie Conley, R. G. Gillespie 2 10
Sarah Lane, Mid South Oil 1 .... gas
Jas. Tibbe, Mid South Oil 1 .... gas
Sam Blanton 38, R. G. Gillespie 5 25
Sam Blanton 125, R. G. Gillespie 6 25
S. & J. Blanton, R. G. Gillespie 3 10
S. & J. Blanton, R. G. Gillespie 4 10
S. & J. Blanton, R. G. Gillespie 5 15
S. & J. Blanton, R. G. Gillespie 6 10
Abe Caudill, Pet. Explo. & Wiser 30 10
Dock Hale, Pet. Explo. & Wiser 1 5
Frank Conley 66, Wheeler & Patton 9 15
Frank Conley 66, Wheeler & Patton 10 20
W. & W. Adams, Oliver Jenkins 1 12
H. C. Conley, Hudson & Collins 11 8
H. C. Conley, Hudson & Collins 12 7
A. J. Tackett, C. W. Wheeler & Co. 4 10
A. J. Tackett, C. W. Wheeler & Co. 5 10
A. J. Tackett, C. W. Wheeler & Co. 6 10
W. H. Fairchild, Eastern Kentucky Oil 3 .... dry
Paris McCarty, Eastern Kentucky Oil 2 .... dry
L. D. Holbrook, George & Touma 1 10
Mark Bays, E. E. White 8 15
J. Stapleton, Carroll O. & G. 3 .... gas
S. L. Williams, Fearless O. & G. 1 .... gas
B. Stapleton, Paintsville Nat. Bank 3 15
J. H. Gardner, New Domain O. & G. 5 10
J. P. Conley, Cumberland Pet. 1 20
J. P. Conley, Kentucky Counties Oil 11 10
Frank Conley 200, S. D. Wheeler, Trustee 5 20
Frank Conley 200, S. D. Wheeler, Trustee 6 20
Frank Conley 200, S. D. Wheeler, Trustee 7 25
Frank Conley 200, S. D. Wheeler, Trustee 8 10
H. Cantrell 40, Atlantic Oil Prod. 7 10
H. Cantrell east 40, Atlantic Oil Prod. 5 10

Wells completed 35
Production 387
Dry 2
Gas 4

ALLEN COUNTY
Scottsville—Williams, Omar O. & G. 8 5
Bean, J. F. Alton & Co. 8 3
F. Gibson, T. Sheridan 12 8
F. Gibson, T. Sheridan 13 6
F. Gibson, T. Sheridan 14 10
T. E. Pearson, Welsh, Atty. 6 8
J. W. Hinton, Karnes & Co. 1 .... dry
Betty Irwin, W. Pruitt Hall 12 15
W. Sarver, Andrus-Barbee Co. 2 6
Sarver, Kenlatex Oil 20 .... dry
M. Willoughby, Esslinger Bros. 2 3
S. E. Eddy, Riddle & Southerland 1 .... dry
Sledge, Weeks & Co. 2 3
T. K. Brown, Toronto Syndicate 18 12
Newman, Unknown 1 .... dry
T. Graves, Keys & Cavanaugh 1 .... dry
T. Graves, Keys & Cavanaugh 2 20
R. H. Hinton, Thompson & Keys 3 .... dry
E. F. Walsh, F. J. Chipman 6 .... dry
Burton, Burton Bros. 6 20
McFishburn, Allen County Oil 13 5
T. Walker, Smith & Co. 1 5
Willoughby, T. B. Willoughby 1 5
F. Gibson, Bender Oil 1 2
F. Gibson, Bender Oil 4 .... dry
Sam Weaver, Unknown 3 6
V. P. Kelley, Neil & Son 2 20
E. Wilson, E. Wilson 1 10
M. Chism, Unknown 1 250
S. H. Dennis, Esslinger Bros. 2 .... dry
F. Gibson, Bender Oil 5 3

Wells completed 31
Production 425
Dry 9

WARREN COUNTY
Bowling Green—D. Lewis, Oliver & Co. 1 3
Chaney, Vic Smith 1 .... dry
H. Bryant, Flannigan & Co. 1 65
Price, Bowlin Oil 1 65
L. Simmons, Thompson & Co. 3 5
Biddle, Cadet O. & G. 18 20
Biddle, Cadet O. & G. 19 25
M. M. Ennis, M. N. Leader 10 12
Hobson, Dr. Crump 11 .... dry
Kissler, Dr. Crump 7 .... dry
Jennie Briggs, Dr. Crump 12 .... dry
G. Moulder, Da Foe & Co. 1 .... dry
J. W. Lowe, Gale Oil 1 .... dry
H. Johnson, Big Miami O. & G. 5 .... dry
Phillips, Butler & Co. 1 .... dry
T. M. Wilson, Kentuckian Oil 4 .... dry
Rowland, Y. F. W. Synd. 1 .... dry
Jones, Martin & Co. 1 .... dry
N. Walters, W. H. Martin 3 .... dry
A. Buttersworth, Oliver & Co. 1 .... dry
W. L. Taylor, Broadway Oil 21 .... dry
A. Shields, Branson & Stewart 1 .... gas
Winlock, Normandy Oil 10 2
Hobson Heirs, Penhoma Oil 15 5
Young, Makeover Bros. 2 20
Elrod, John L. Harper & Co. 9 15
Price, Ruby Cons. Dev. 2 32
Dr. Moss, Fritz & Co. 4 10
McLamore, C. A. Turner 2 100
W. A. Gott, Plantation Cons. 4 37
W. A. Gott, Plantation Cons. 5 29
Davison, W. F. Coast Oil 3 10

Wells completed 32
Production 455
Dry 14
Gas 1

BARREN COUNTY
Glasgow—K. Nichols, Smith & Son 1 10
Mayfield, Houchins Oil 1 15

Wells completed 2
Production 25

SIMPSON COUNTY
Franklin—R. G. Bland, Dr. Crump 11, 13 .... dry
Holland, Phelps & Co. 1 .... dry
Holland, Phelps & Co. 2 125
Hogan, Unknown 7 10
E. Ray, Ellis Ray Oil Co. 1 7

Wells completed 6
Production 142
Dry 3

CUMBERLAND-MONROE COUNTIES
Burkesville—Chas. Williams, Lew Emery, Jr., & Son 1 .... dry
M. Smith, McCormick & Co. 1 .... dry
J. M. Melton, W. A. Henson 2 .... dry
L. C. Ross, Holmes & Co. 2, 3 .... dry
G. P. Turner, Mack Graff & Co. 1 .... dry
W. P. Wendall, Snyder & Spatz 1 .... gas
J. B. Hume, Judio Dev. 1 240
J. B. Hume, Judio Dev. 2 200
Huddleston, Morris Petroleum 4 1500
L. Coffey, Huntington-Okla. Oil 1 300
R. G. Gilbert, Southern O. & Ref. 2 15

Wells completed 12
Production 2255
Dry 6
Gas 1

HANCOCK COUNTY
Hawesville—Helm, Leeper Oil 1 10
Miller, W. H. Damron 1 10
A. Stewart, Kentucky Oil 10 5
Jones, Newton Oil & Daugherty 2 .... dry
A. Baize, Thompson & Co. 1 .... dry

Wells completed 1
Production 3
Dry 1

METCALF COUNTY
Edmonton—Gather Cassaday, Unknown 1 1
Anderson, Knob Lick Oil 1, 2 .... gas
Thompson, Unknown 1, 2 .... gas

Wells completed 1
Production 1
Gas 1

GREENUP COUNTY
Oldtown—W. & O. Womack, Triangle O. & G. 1 10

ELLIOTT COUNTY
Sandy Hook—Ves Peters, Campbell & Wheeler 10

LAUREL COUNTY
London—Bernstadt, Common O. & G. 1 10
HARDIN COUNTY
Elizabethtown—Russell, Smith & Co. 1 1
FLOYD COUNTY
Hueyville—J. B. Stevens, Henry Chatenan 2 10
Elkhorn Coal, Midas Carbon 1 .... gas

Wells completed 1
Production 1
Gas 1

TENNESSEE
CLAY COUNTY
Celina—E. S. Dalton, Arkansas Parties .... dry
MISSISSIPPI
LEE COUNTY
At Tripolet—Local Parties 1 .... dry
GEORGIA
Near McRae—Deppe Belle Oil 1 .... dry
WAYNE COUNTY
Wells Drilling
Monticello—Coffey Heirs, Bell Bros. 2.
G. D. Sanders, Barr & Griffin 5.
L. N. Morrow, Beaver Pet. 4.
D. C. Denney, C. M. Work 5.
Rigs, 0; wells drilling, 4; total, 4.
POWELL COUNTY
Wells Drilling
Slade—Virdin, Thirteen Oil 4.
A. Williams, Hupp & Duff 2.
Mitch Neal, Hupp & Duff 14.
Cas Mullins, Hupp & Duff 4.
Sam Hall, Powell Oil 8.
Sam Baker, Heinie Oil 1.
Townsend, E. E. Edwards 2.
Root, Boyd, Petroleum Explo. 7.
E. D. Curtis, Knight & Biemer 1.
Rigs, 0; wells drilling, 9; total, 9.
ESTILL COUNTY
Wells Drilling
Irvine—Sam Miller, Smith, Clark & Co. 1
Art Campbell, Superior Oil Corp. 2.
Millard Smith, Raymure & Combs 2.
Lula Law, Amsler & Downs 10.
Joe Frazier, Swiss O. Corp. 2.
Paul Rogers, Wood Oil 1.
Rigs, 0; wells drilling, 6; total, 6.
MORGAN COUNTY
Wells Drilling
Cannel City—Ella Ferguson, Tom Hays 1.
LEE COUNTY
Wells Drilling
Beattyville—A. H. Warner, Lee Land Oil 10
J. D. Smythe, Superior Oil Corp. 15.
Lucy Watkins, J. H. Sallee 8.
J. T. Hare, The Petroleum Co. 4.
Rigs, 0; wells drilling, 4; total, 4.
LAWRENCE-JOHNSON COUNTIES
Wells Drilling
Laura Skaggs, Union Gas & Oil 4.
J. C. Gillam No. 2, Union Gas & Oil 2.
Laura Skaggs, Union Gas & Oil 4.
L. V. Skaggs, Union Gas & Oil 3.
Sena Skaggs, Union Gas & Oil 1.
P. P. Holbrook, Union Gas & Oil 18, 22.
J. A. Dials, Union Gas & Oil 5.
C. F. Fyffe, Union Gas & Oil 1.
Lee Skaggs, Jr., Cumberland Pet. 5.
Wm. Boggs, Cumberland Pet. 4.
Sena Hamilton, Cumberland Pet. 4.
R. M. Sparks, Boston-S. W. Oil 21.
Nap Williams, Boston-S. W. Oil 2.
M. Bailey, Freudenberg & Co. 2.
Robt. Fyfee, Fave Fox & Co. 2.
C. Williams, J. E. McIntyre & Co. 6.
Milt Williams, Central Kentucky Gas 4.
Will Gillam, Indian-Tex Oil 5.
J. C. Gillam, Indian-Tex Oil 3.
Unknown, W. J. Hetter & Co. 1.
Rigs, 0; wells drilling, 21; total, 21.
JOHNSON-MAGOFFIN COUNTIES
Wells Drilling
Paintsville—Milt Wheeler, Carter Oil 3.
W. S. Adams, Pet. Explo. & Wiser Oil 13.
Kelly Adams, Pet. Explo. & Wiser Oil 1.
D. J. Vanderpool, Pet. Expl. & Wiser Oil 1.
Abe Caudill, Petroleum Exploration 11.
F. M. Moore, R. G. Gillespie 5.
J. M. Kimbleton, R. G. Gillespie 10.
Darius Conley, R. G. Gillespie 6.
Sam Blanton 125, R. G. Gillespie 7.
Tollie Conley, R. G. Gillespie 3.
S. & J. Blanton, R. G. Gillespie 7, 8.
C. Roark, Dave Browning & Co. 2.
M. E. Coffey, Superior Oil 2.
A. A. Almy, Cumberland Pet. 5.
Green Rice, Southwestern Pet. 33.
S. Q. Kelly, Unknown 1.
J. Cochran, Little Paint Oil 2.
Elam Powers, Fields & Magee 1.
Sam Blanton, Palmer Pet. 8.
Gil Blanton, Meade & Stafford 2.
W. M. Fulkerson, Orrell & Thompson 1.
Mary Franklin, George & Touma 4.
S. McKenzie, Coast Oil 5.
L. M. Kimbleton, Little Paint Oil 2.
S. V. Skaggs, Finley, Day & Co. 2.
Manford Blanton, Structure Oil 23.
Harman, Oliver Jenkins 6.
J. H. Arnett, Bed Rock Oil 13.
Bishop Patrick, Swiss Oil Corp. 7.
Jack Patrick, Burning Fork Oil 6.
Bud Gullett, Jas. J. Parker 1.
Jos. Wright, Jas. J. Parker 1.
H. C. Conley, Hudson & Collins 13.
M. S. Ross, Carroll O. & G. 1.
Frank Conley 200, S. D. Wheeler Trus. 9, 10.
H. Cantrell 40, Atlantic Oil Prod. 8.
H. Cantrell east 40, Atlantic Oil Prod. 6.
A. J. Tackett, C. W. Wheeler 7, 8.
Rigs, 0; wells drilling, 40; total, 40.

ALLEN COUNTY
Wells Drilling

Scottsville—Morehead, Sixty-Six Oil Syndicate 7.
W. L. Motley, Turner & English 5.
R. Buchannan, Guy & Co. 2.
Motley, Thompson & Co. 9.
T. L. Bean, Payne & Pickett 2.
Grubbs, Layman & Co. 7.
J. F. Stovall, Karnes & Co. 12.
J. I. Shelton, H. A. Kiser 30.
Willoughby, Tom Curry 4.
W. H. Heyengton, Dye Bros. 1.
Tracey, W. B. Reed 2.
Gibson, Good & Pauell 1.
F. Dyson, Ruby Cons. Dev. 9.
W. Clark, Simpson & Stentz 1.
S. H. Dennis, Friends Oil 2.
B. Allen, Hall & Co. 1.
T. K. Brown, Toronto Syndicate 19.
P. Gibson, Sheridan & Co. 2.
F. Gibson, Sheridan & Co. 15.
McFubbbrn, Allen County Oil 14.
T. Williams, F. J. Chipman 1.
J. M. Pearson, Hickory Hill Oil 3.
N. Johnson, O. J. Johnson 8.
G. C. Carter, Fishburn Oil 1.
Ayres, Kaiser & Co. 12.
F. Calvert, Brendall & Co. 11.
F. Gibson, M. W. Syndicate 6, 7.
Rigs, 0; wells drilling, 28; total, 28.

WARREN COUNTY
Wells Drilling

Bowling Green—Biddle, Cadet O. & G. 20, 21, 22.
Conley, Cadet O. & G. 4.
J. Hobson, M. B. Williams 3.
Lena Doyle, E. M. Treat & Co. 3.
Sebe Smith, E. M. Treat & Co. 15.
M. Reeves, Martsolf Prod. Co. 2.
J. Isabelle, Wood Oil 10.
Keller, Ohio Fuel Oil 2.
Hogan, Barnett & Co. 1.
Garrett, Ohio Fuel Oil 4.
Hill, Farmers O. & G. 1.
Elkins, Chicago Interests 1
Gillespie, Gillespie Oil 4.
J. Hudson, Beaver Pet. 2.
Dunkin, Unknown 1, 2.
J. Kelley, Mountain State C. & O. 9.
Woodard, C. P. Taneyhill 1.
Noah Perkins, White Oak Fuel 2.
Sid Petty, Leonard & Co. 7.
G. Potter, Tishner & Co. 2.
T. Upton, J. L. Harper & Co. 1.
Bryant 16-A, Thompson & Co. 2.
Willoughby Lane, Nottulyn Oil 3.
A. Colburn, M. C. Mullen 5.
B. Stiles, Gale Oil 1.
W. A. Gott, Plantation Cons. Oil 6, 7.
Dr. Francis, G. C. Foster & Co. 1.
Simmons, Plantation Cons. Oil 2.
Young, Makeever Bros. 3.
Price-Hall, Ruby Cons. Oil 3.
Davison, W. F. Coast Oil 4.
McLemore, C. L. Turner 3.
Joe Kelley, Viegler Oil 1.
G. Smith, Watts & Co. 1.
B. Price, Bowling Oil 2.
A. Shields, Branson & Stewart 2.
Rigs, 0; wells drilling, 40; total, 40.

BARREN COUNTY
Wells Drilling

Glasgow—K. Nichols, Smith & Son 2.
Smith, Smith-Oliver O. & G. 12, 13.
Childress, Maxey Kopel 3.
Harston, Lew Emery Jr. & Son 5, 6.
Button, Lew Emery, Jr. & Son 54.
Truble, Houchins Oil 3.
L. Howard, Elem O. & G. 1.
Bybee, Cave City O. & G. 3.
Lyons, Cave City O. & G. 1.
H. Myers, Trigg & Scott 1.
Russell, Ward-Sampson-Baird 1.
Adams, White & Moore 3.
L. Summers, South St. Paul O. & G. 4.
Widow Ritchie, Ward-Sampson & Co. 1.
Mansfield Houchins Leasehold 1.
Taylor, Bryner Oil 3.
Summers, Horace Coombs 1.
Vincent, Summer Valley O. & G. 2.
Wood, Warren-Daniels Oil 1.
Rigs, 0; wells drilling, 21; total, 21.

SIMPSON COUNTY
Wells Drilling

Franklin—Harris-Crowder, R. G. Small 1.
Pugh, Western Eng. & Dev. 12.
Ellis, W. H. Daniels & Co. 1.
Hoy, C. E. Luttrell 1.
Summers, E. M. Treat & Co. 11.
C. F. Butts, Liggett & Dixon 1.
Justice, C. F. Dodge & Co. 3.
Wilkerson, Rhodes & Co. 4.
Holland, Phelps & Co. 3.
A. Slate, J. H. McClurkin 1.
Rigs, 0; wells drilling, 10; total, 10.

CUMBERLAND-MONROE COUNTIES
Wells Drilling

Burkesville—L. C. Butler, T. Earl Williams & Co. 1.
L. Smith, Ridenour & Stewart 1.
W. Bybee, Adams & Eagle 1.
Riddle, E. M. Treat & Co. 1.
Sam Burton, Marsolf Fuel Prod. 1.
Gentle, E. M. Treat & Co. 1.
Keen, W. S. Raydure 5.
Sam Smith, W. S. Raydure 1.
A. Huddleston, W. S. Raydure 1.
J. M. Riddle, W. S. Raydure 2.
J. B. Riddle, Hock & Wise 1.
C. Grose, Seaboard Oil 1.
R. E. Williams, Kanawha Oil 1.
F. F. Williams, E. M. Treat & Co. 1.
W. B. Arms, Chenault & Williams 1.
R. G. Gilbert, Southern O. & Ref. 4.
Poindexter, Penderson & Bentley 1.
Kin Crawford, Pederson & Bentley 2.
Turn Smith, Reynolds & Bushaw 1.
Peter Coe, Bushaw & Co. 1.
A. Williams, C. P. Taneyhill 1.
A. M. McMillan, Hensgen & Bentley 1.
A. Short, Powell Oil 2.
J. R. Poindexter, Young Oil 1.
C. Chapman, J. J. White & Co. 1.
M. Keith, Carroll Oil 1.
L. Chapman, Louisville Gas & Electric 1.
East Fork Creek, Turner & Co. 1.
L. Coffee, Huntington-Okla. Oil 2.
A. Huddleston, Morris Pet. 5.
Humble Star Oil 1.
J. C. Hume, Judie Dev. 3.
Rigs, 0; wells drilling, 32; total, 32.

CLINTON COUNTY
Wells Drilling

Albany—H. Hopkins, C. H. Smith & Co. 1.
N. Flowers, Beech Bottom O. & G. 1.
J. Edwards, Beech Bottom O. & G. 1.
Irwin, Mutual O. & Ref. 1.
T. C. Koger, C. E. Smith & Co. 1.
James, J. H. Pigg & Co. 1.
Rigs, 0; wells drilling, 6; total, 6.

RUSSELL COUNTY
Wells Drilling

Creelsboro—J. Dunbar, G. W. Guthrie 1.
Coffe, Carnahan Oil 15.
L. Miller, Leslie Combs 1.
E. Mann, Willer & Co. 1.
Campbell Bros., McMeade Oil 4.
Rigs, 0; wells drilling, 5; total, 5.

HANCOCK COUNTY
Wells Drilling

Hawesville—Bays, Keiser & Johnson 1.
E. Barlow, Leeper Oil 1.
Curry, Archer & Co. 2.
D. Spurrier, Newton Oil 1.
Ed. Baize, Thompson & Co. 2.
Rigs, 0; wells drilling, 5; total, 5.

OHIO COUNTY
Wells Drilling

Hartford—B. Payne, Kentucky Oil 1.
Payne 58-A, B. Thompson 1.
Vogles, Newton Oil & Daugherty 2.
Smith 120-A, W. H. Damron 1.
Rigs, 0; wells drilling, 4; total, 4.

HOPKINS COUNTY
Wells Drilling

Madisonville—Slaughterville, B. S. Kelly 1.
Bishop, Wm. Redman 1.
Holloman, Copper Flash Oil 4.
Rigs, 0; wells drilling, 3; total, 3.

OWSLEY COUNTY
Wells Drilling

Boonville—Anderson, Petroleum Exploration Co. 1.
Andy Combs, Coombs Bros. 4.
Rigs, 0; wells drilling, 2; total, 2.

METCALF COUNTY
Wells Drilling

Edmonton—Dry Fork, Pepley & Co. 1.
Unknown, Cave City O. & G. 1.
J. W. Galloway, Sinning & Border 1.
Anderson, Knob Lick Oil 3.
Thompson, Unknown 3.
Rigs, 0; wells drilling, 5; total, 5.

HENDERSON COUNTY
Wells Drilling

Henderson—Nau. H. Y. Clay & Co. 1.
J. Epperson, Railroad Oil 1.
Rigs, 0; wells drilling, 2; total, 2.

GREENUP COUNTY
Rigs

Greenup—Lee Evans, Petroleum Exploration 1.

CRITTENDEN COUNTY
Wells Drilling

Tolus—Sam C. Hall & Co. 1.

CALLOWAY COUNTY
Wells Drilling

Murray—Davenport Oil 1.
McMurtrie & Co. 1.
Rigs, 0; wells drilling, 2; total, 2.

UNION COUNTY
Wells Drilling

Morganfield—Geo. Proctor, J. B. Ayres & Co. 1.

BREATHITT COUNTY
Wells Drilling

Jackson—S. H. Hurst, Petroleum Exploration 4.

MONTGOMERY COUNTY
Wells Drilling

Mt. Sterling—J. R. Magason, Hinkston Oil 1.
Faulkner, Hinkston Oil 1.
Rigs, 0; wells drilling, 2; total, 2.
Mt. Sterling—J. P. Magason, Hinkston Oil 1.
Faulkner, Hinkston Oil 1.
Rigs, 0; wells drilling, 2; total, 2.

ROWAN COUNTY
Wells Drilling

Morehead—Craney Creek, Patton O. & G. 1.

GRAYSON COUNTY
Wells Drilling

Leitchfield—Cincinnati C. Co., W. B. Lyles 1.

ELLIOTT COUNTY
Wells Drilling

Sandy Hook—Mildred Wagner, Superior Oil 1.
Geo. Kayzee, T. J. Evans 2.
Ves Peters, Campbell & Wheeler 2.
Rigs, 0; wells drilling, 3; total, 3.

LAUREL COUNTY
Wells Drilling

Near Bernstadt—Common O. & G. 2.
Mrs. L. Hubbard, Piney O. & G. 21.
Rigs, 0; wells drilling, 2; total, 2.

HARDIN COUNTY
Wells Drilling

Elizabethtown—Russell, Smith & Co. 2.

MUHLENBURG COUNTY
Wells Drilling

Near Penrod—Wood Oil 1.

GRAVES COUNTY
Wells Drilling

Unknown Parties 1.

PIKE COUNTY
Wells Drilling

Pikeville—Ond Creek Coal, A. J. Dalton 1.

TENNESSEE
CLAY COUNTY
Wells Drilling

Celina—Bibery, Biggerstaff & Durham 1.
H. Lyons, Palmer & Bushong 1.
Overstreet, Bushaw & Co. 1, 2.
W. S. Dalton, Arkansas Parties 2.
Marcum, New York Parties 2.
Rigs, 0; wells drilling, 6; total, 6.

MAURY COUNTY
Wells Drilling

Columbia—At Hampshire, Unknown 1.

HARDMAN COUNTY
Wells Drilling

Bolivar—Brown Sand, Spring Valley Dev. 1.

MADISON COUNTY
Wells Drilling

J. H. Jackson—H. H. Murchison, Jackson-Tenn. Synd. 1.

GRUNDY COUNTY
Wells Drilling

Mount Eagle—Andrews & Barbee 1.

FAYETTE COUNTY
Wells Drilling

Sommerville—Unknown 1.

LAWRENCE COUNTY
Wells Drilling

Lawrenceburg—Stribbling, Planet Oil 3.

MARSHALL COUNTY
Wells Drilling

Lewisburg—Haywood, Beck Oil & Gas 1.

HENDERSON COUNTY
Wells Drilling

Lexington—Draper & Co. 1.

SHELBY COUNTY
Wells Drilling

Arlington—Arlington Parties 1.

WARREN COUNTY
Wells Drilling

McMinnville—Powell, Riverside O. & G. 1.
Unknown, Whitner & Co. 1.
Rigs, 0; wells drilling, 2; total, 2.

SUMNER COUNTY
Wells Drilling

Gallatine—Burnley, Sews & Co. 1.
Stewart, McGee & Co. 2.
The oil burning vessels now in exist-
Unknown, Gillespie Oil 1.
Rigs, 0; wells drilling, 3; total, 3.

VAN BUREN COUNTY
Wells Drilling

Southeast Part County—Johnson Oil 1.

MISSISSIPPI
TISHOMINGO COUNTY
Wells Drilling

Near Iuka—Mississippi O. & R. 1.

CALHOUN COUNTY
Wells Drilling

Calhoun—Northeast O. & G. 1.

HINDS COUNTY
Wells Drilling

Elton—Benninger & Beach 2.

JACKSON COUNTY
Wells Drilling

Utica—Jackson Oil 1.

LINCOLN COUNTY
Wells Drilling

Near Hartman—Anderson & Co. 1.

WASHINGTON COUNTY
Wells Drilling

Granville—Williams, Alhambra Oil 1.

LAFAYETTE COUNTY
Wells Drilling

Axford—Kinzey O. & G. 1.

PIKE COUNTY
Wells Drilling

Cupit—Gulf Drilling Co. 1.
Tulsa Parties 1.
Rigs, 0; wells drilling, 2; total, 2.

JEFFERSON COUNTY
Wells Drilling

Truly—Manhattan-Tex Oil 2.

CHICKASAW COUNTY
Wells Drilling

Near Houston-Harley Dev. 1.

UNION COUNTY
Wells Drilling

Unknown—Maynard Well Co. 1, 2.
Rigs, 0; wells drilling, 2; total, 2.

TALLAHASSEE COUNTY
Wells Drilling

Charleston Oil 1.

COPIAH COUNTY
Wells Drilling

Section 15-13-13—B. H. White 2.
Marshall Oil 1.
Rigs, 0; wells drilling, 2; total, 2.

LOWNDES COUNTY
Wells Drilling

Billups—Anderson Drilling 1.

ISTAWBA COUNTY
Wells Drilling

Unknown—Missouri Capitalists 1.

CLAY COUNTY
Wells Drilling

Near West Point—Gulf Development 1.

ALABAMA
SUMPTER COUNTY
Wells Drilling

Near Cartopia—Sam Tyndall & Co. 1.

MORGAN COUNTY
Wells Drilling

Near Decatur—Albany-Decatur O. & G. 1.

HUTCHERBEE FIELD
Wells Drilling

Near Salipta—Keoughan O. & G. 2.

BALDWIN COUNTY
Wells Drilling

Near Bay Nette—Stowe & Co. 1.

HALE COUNTY
Wells Drilling

Near Greensboro—Hale Oil 1.

SHELBY COUNTY
Wells Drilling

Near Columbiana—Cooley Oil 1.

WILCOX COUNTY
Wells Drilling

Unknown—Blue Bell Oil 1.

CENTER PART STATE
Wells Drilling

Inter Coastal Oil 2.

COLBERT COUNTY
Wells Drilling

Neal Muscle Shoals—Muscle Shoals Oil 1, 2.
Near Sheffield—Spring Valley Oil 1.
Rigs, 0; wells drilling, 3; total, 3.

MADISON COUNTY
Wells Drilling

Near Huntsville—P. J. Mahoney 1.

LAWRENCE COUNTY
Wells Drilling

Near Moulton—Tulsa Parties 1.

GEORGIA
Wells Drilling

South of Atlanta—Dixie Oil 1.
Near Hawkensville—Florida-Georgia Cons. O. & G. 1.
Rigs, 0; wells drilling, 2; total, 2.

TANKS FOR PROVIDENCE, R. I.

PROVIDENCE, R. I., Oct. 15.—The joint standing committee on garages will recommend to the City Council the issuance of permits for erection of tanks for storage of 5,190,000 gallons of oil and gasoline along the city's waterfront. Mexican Petroleum Corp. asked for permission to erect five tanks with total capacity of 3,990,000 gallons and Dutee W. Flint Oil Co., Inc., asked permission to erect 10 tanks with a capacity of 1,200,000 gallons.

For Human Contact And Fellowship in Modern Industries

By Bennett Chapple
of American Rolling Mill Co., Youngstown, Ohio

(From Address Before the International Petroleum Exposition at Tulsa, Okla.)

There is an old song, "It's Always Fair Weather When Good Fellows Get Together." The spirit of that song is sweeping over modern industry. The most infectious thing in the world is a smile. Industry is learning to smile, which is only another way of saying that the human element in industry which has long been stifled under the idea that "business is business" is budding and blossoming into real fellowship. The day of hire and fire has passed; cooperation and coordination are now the accepted order.

In modern organizations, human beings are no longer treated as machinery or fixtures; they are men who have every opportunity to contribute all their ability to the stress of the business and to prosper in proportion to what they can and do contribute.

Men in all walks of life are coming to understand that wages and profit come from productian and from no other source; that strife and contention are the great enemies of production and that discord is the most expensive instrument of destruction. Men from the ranks of both capital and labor have tried to profit by the experience of the war and have come to see that might is not right. Neither are the apparent victories wrung from the strife and contention of conflicting groups of sufficient long standing to bring a return commensurate with their cost.

Sensible men know that bargain and barter backed by force of any kind represent the shadow and not the substance and that no agreement reached between associated groups is of any value unless it embodies a fair deal and results in at least a reasonable degree of satisfaction to all concerned.

Cooperation is not merely a virtue, it is not merely an evidence of good-will. In the light of the present day it is even more essential than the foundation stones of business, because if they crumble the business can move on to another location, but if there is no co-operation, the only place the business can move, is off the map.

RUSSIAN VIEWS ABOUT OIL

At a conference of the Soviet Economic Council, during a discussion on the recent visit of American Senators and industrialists to Russia, Chairman Bogdanoff said that although American capitalists were interested in Russia as a likely market for American goods, they were much more interested in the oil wells, of which they hoped eventually to obtain control. He said the oil wells of America would all give out within the next 20 years, and that, with the exception of Mexican wells, practically all oil sources were in English hands. America was compelled, therefore, to seek fresh oil supplies, and this accounted for the great attraction the Caucasus held for Americans, who would readily sign a trade agreement could they obtain oil concessions there.

JEFFERSON COUNTY, OKLA., TEST

WAURIKA, Okla., Oct. 15.—Hutton Bros., oil operators of Eldorado, Kans., have made a location for a test for oil on the John Embry farm, near the center f Section 5-5s-7w, in Jefferson County. A 22-inch rotary outfit will be used and the well drilled to 4,000 feet is necessary. The location is in the vicinity of a test drilled to about 2,500 feet a few years ago by the late B. V. Cummins and associates, in which an oil sand, thought good for several barrels daily, was found at about 700 feet.

Rigs, 0; wells drilling, 18; total, 18.

ADAMS COUNTY
Wells Drilling

Blue Creek—C. J. Jones, Rockford Oil 2.

A. J. Tackett, C. W. Wheeler & Co. 5 10
A. J. Tackett, C. W. Wheeler & Co. 6 10
W. H. Fairchild, Eastern Kentucky Oil 3 ..... dry

Hawesville—Helm, Leeper Oil 1 10
Miller, W. H. Damron 1 10
A. Stewart, Kentucky Oil 10 5

H. Cantrell east 40, Atlantic
A. J. Tackett, C. W. Wheeler
Rigs, 0; wells drilling, 40; total,

25 CENTS per line first insertion; 15c per line each additional insertion. Cash in advance.

CLASSIFIED WANTS

COPY must be in our office Friday prior to date of issue. Average 6 words to the line. Cash in advance

LEASES—PRODUCTION

FOR SALE IN FEE—Five acres in Section 32, Township 3 south, Range 2 west, Carter County, Oklahoma. Address M. O. Musser, West Union, Iowa.

FOR SALE—Seminole County, Oklahoma, farms; oil leases; royalties. C. B. Hyde, Mercantile Bldg., Oklahoma City, Okla.

FOR SALE—29x14-foot Boye & Emmes lathe quick change; 26x6-foot planer; No. 1 Cincinnati cutter grinder; No. 2 Leblond milling machine universal complete; No. 1 style, Landis 11x20-inch piston grinder. Kingman Machine Shop, Enid, Okla.

FOR SALE—At bargain prices, oil and gas leases, production and royalties in the Kentucky shallow fields. For full particulars and maps, address W. P. Harley, Bowling Green, Ky.

I HAVE wildcat acreage for sale in vicinity of well located by the same geologist who discovered the Sayre oil field and recommended by him to be as safe an investment as the Sayre Field. I can sell for $2 per acre and up. Dr. W. R. German, Canadian, Texas.

FOR SALE—Oil and gas leases in Cumberland, Monroe and Metcalfe Counties, Kentucky. F. L. James, Edmonton, Ky.

$1.00 PER ACRE for 1,000 or 5,000 acres in the Panhandle of Texas on surveyed structure. Well drilling to prove this territory. No rental due till 1926. A snap for someone. If interested, write and will forward printed geologist's report and map. 300 Alworth Bldg., Duluth, Minn.

MEXICO

100,000 acres valuable agricultural, fruit and timber lands in tropical Mexico. Oil seepage on land. Agents wanted. For sale by H. C. Jenkins, Austin, Texas.

FREE ON REQUEST—Map of Allen County, Kentucky, showing pools. Greatest shallow oil field in the world. Production on pipe line and leases with wells equipped and unequipped, near pipe line. Splendid opportunity for oil companies or syndicating. Brokers and promoters protected. Lock Box 4, Scottsville, Ky.

Unimproved timber land in Laclede County, Missouri; 160 acres $1,200; 80, $600; 40, $300; $25 down and 10 per month, no interest; other bargains. Write for list. Holt Realty Co., Lebanon, Mo.

FOR SALE—Ninety acres Bear Creek, Cumberland County, Kentucky. This lays 800 feet north of E. M. Treit & Co. No. 1 on the Riddle farm, which is just in at 1,020 feet and looks like a big one; within one-half mile of C. C. Smith farm, which has six producers and right on same structure. Will consider sale of one-half interest. Write J. F. Ross, Burkesville, Ky.

OIL FIELD LEGAL BLANKS—Fifteen years' specializing in blank forms. Royalty, deeds, leases, plats, gauge books, releases, well logs, field time books, gasoline plant reports; stock certificates, corporate and common law. Catalog on request. Burkhart Printing & Stationery Co., Tulsa, Okla.

POTTAWATOMIE COUNTY leases and royalties. B. H. Rowlett, Tecumseh, Okla.

FOR SALE—140 acres, southeast 30-18-3e; 160 acres southeast 5-18-1e, Payne County, Oklahoma. $25 per acre, subject to reserving half all mineral. C. L. Van Wenden, Apartment No. 1, 337 N. Market Street, Wichita, Kans.

McCLAIN COUNTY leases dirt cheap. Land Owner, Box 458, Purcell, Okla.

FOR SALE—Limited amount of acreage, Lonoke, Faulkner, Conway and Van Buren Counties; 35 cents per acre with 25-cent renewals. These are among the best wildcat offerings. Buy a few forties, it will pay you. W. T. Pitts, El Dorado, Ark.

LEASES—PRODUCTION

TEN CENTS AN ACRE buys leases only 35 to 50 miles from the center of the Luling oil field. These leases give you seven-eighth of all the oil; require no drilling, and are new standard form 88 five-year commercial leases. Two years ago one man bought 400 acres from us in the present Luling oil field. He recently refused $100,000 for same. The leases we offer today for as low as 10c an acre give you the same opportunity. You can buy from 10 acres up. Write for maps and other data today. You are under no obligation to buy. Gulf Realty Co., 1036 Bedell Bldg., San Antonio, Tex.

FOR SALE—Will sell you for $15,000 producing royalties with over $1,000 per month income. For particulars write, W. T. Pitts, El Dorado, Ark.

FOR SALE—Oil and gas lease on E ½ of E ½ of 29-16-9, Creek County, Okla. Frank G. Drenning, 623 Kansas Avenue, Topeka, Kansas.

WANTED—Drilling block with good geological report thereon, located in Kansas or Oklahoma. Address Box 282, Salina, Kansas.

WEWOKA LEASES and royalties for sale. Close to production and drilling wells. Orcutt-Harris & Co., Oklahoma City, Okla.

FOR SALE—EQUIPMENT

TANK BOLTS
SAME-DAY SHIPMENT

5/16x¾-inch, ⅜x¾-inch, ⅜x1-inch, ⅜x1¼-inch, ½x1-inch.

Write or wire for quotation.

SHEETS—All gauges and sizes; galvanized, blue-enamel. Also corrugated and composition roofing. Plates to ¼-inch.

STEEL MFG. & WAREHOUSE CO.
1447 Genesee St. Kansas City, Mo.

MEXICO—If interested send for sample copy (no promotions). Financial and Commercial News. 507 Deere Bldg., Dallas, Tex.

FOR SALE OR EXCHANGE—Have 110 acres of land near Mounds for sale. This land is in oil district. Might trade for Eastern property near Indiana. Address Box 300, The Oil and Gas Journal, Tulsa, Okla.

OIL LEASE—Have fine oil lease in Mounds district for immediate drilling. Am owner. Write to Box 396, Vincennes, Ind.

FOR SALE—All kinds royalties; best investment in oil business; $1,000 will buy you two 20-acre pieces in good territory. Leave selection to me. Don't miss them. W. T. Pitts, El Dorado, Ark.

THE WESTERMAN STUFFING Box does not pack with rubber rings and will give long, continuous service without attention. If your supply dealer hasn't them, send your order direct to The Dragon Mfg. Co., Marietta, Ohio.

FOR SALE—Tank cars, clean; nine 8,000-gallon 1916 Chicago Steel Car builder, class 11-40 ton truck, delivery Chicago. Konsberg Co., 40 N. Dearborn St., Chicago.

FOR SALE—Settled production, 2,000 bbls. steel storage, 66 h. p. Oilwell boiler, etc.; two well, standard rigs, 2 gas engines, pumping daily; fine promotion lease. East Field, El Dorado, Ark, Box 226.

For SALE—First-run casing, 30 per cent discount. Complete string, extra heavy, long collar pipe for 4,000-foot well f. o. b. cars near Salina, Kans. Keys Petroleum Co., Salina, Kans.

FOR SALE OR RENT—Steam driven Sullivan Straight Line Air Compressor; piston displacement 101 cubic foot per minute; also air receiving tank. Box 301, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE—EQUIPMENT

OIL FIELD LEGAL BLANKS—Leases, assignments, releases, township plats, gauge books, run tickets, time books, well records, etc. Request on your letterhead gets free catalogue. Olds Press, 215 East Third St., Tulsa, Okla.

FOR SALE—If you have on hand drilling outfits, boilers, engines or anything useful to the industry that is not in use, don't let it deteriorate—Sell it. The Oil and Gas Journal want columns will bring you many inquiries.

FOR SALE—Five 1,665 B. H. P. gas engines, natural or producer gas, Bethlehem Steel Co., single Tandem No. 23-B-116 R. P. M., direct-connected to 1,390 K. V. A. G. E. Co. type A. T. 1 form E. generators, 2300 volts, 3 phase, 60 cycles, excitation voltage 125. Above complete with auxiliary equipment. Monongahela West Penn Public Service Co., Box 516 Fairmont, W. Va.

FOR SALE

Lathe, Greaves-Clusman
13½-in overall
30-in swing
6 ft. 8 in. between centers
Countershaft
1 Face Plate
1 Steady Rest
Vertical Hand Miller
Pratt & Whitney, No. 10
Countershaft
No tools.

The above machines are in first-class condition, having been used very little.

Write to Board of Education, Coffeyville, Kans.

I am dismantling and offering for sale all equipment of the Great American Refinery at Jennings, Okla.; included in this equipment is 80,000 feet of 2-inch line pipe; 1 25,000-bbl. and 1 5,000-bbl. standard steel tank; four 100-H. P. stationary boilers; one 40-H. P.; two 35-H. P. oil field boilers; lead line agitators; 15 stills, etc. If interested in anything to be found in a refinery address F. A. Sanders, 420 Mayo Bldg., Tulsa, Okla.

FOR SALE—No. 27 Star Drilling Rig and mounted boiler, practically new, with lines, tools, casings, etc., near Kemmerer, Wyoming. Write to Ivan S. Jones, Kemmerer, Wyoming.

FOR SALE—Pipe shop complete, Bristow, Okla. Threads 1-in. to 16-in. Write Box 796, Beggs, Okla.

WANTED

PRODUCTION Wanted—50 to 500 barrels settled. No brokers. Strictly confidential. Give full particulars. Operator, Box 388, Independence, Kans.

WANTED PRODUCTION—I have $25,000 cash and a 1,500-acre ranch located in Central Texas that I will trade for a good producing lease in Oklahoma, Texas, or Louisiana. This land is open prairie, well grassed and well watered. Small loan at 7 per cent. This land is worth what I ask and I will not consider inflated values or salt water leases. Address Box 236, Clifton, Texas.

WANTED—Labor contract to drill wells to 800 feet. Have good machine and several years' experience in oil field work. Can start 10-inch hole. A. E. Needy, Butler, Okla.

WANTED—Responsible company to drill on acreage near Mexia, East Central Texas. G. M. Schoemann, 5537 Waterman Ave., St. Louis, Mo.

DRILLING PROPOSITION WANTED—Three experienced men in geological and development work are open for proposition of any kind up to pipe line delivery or will put time and experience against capital in organizing company in territory standing geological examination or will take drilling proposition on percentage basis anywhere. Write Box 303, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE—PETS

AIREDALES—Registered; big, husky pups; four months old. Males, $15. M. Evans, Cherokee, Okla.

BOSTON TERRIER PUPPIES—Females; sired by Smith's Prince Chas; reasonable. Box 602, Calhoun, Mo.

BEAUTIFUL SETTER PUPS by the winner, High Speed Ben by Betty Momomey she by Momomey, II; coming three months old; $35 either sex; all papers; satisfaction guaranteed. J. H. Armstrong, Vaiden, Miss.

FOR SALE—Liver and white ticked pointer dog 2½ years old. Does it all except retrieve at times. $50. C. H. McLeary, Honey Grove, Texas.

HELP WANTED

WANTED—A man experienced in heat treating Rotary tool joints. Must have had experience with high grade manufacturer. Write Box 220, The Oil and Gas Journal, Tulsa, Okla.

WANTED—A man who can qualify to meet big, successful business men who are interested in gas and oil well supplies. Address, H. L. Cartzdafner, Centropolis, Kansas.

SIDE LINE SALESMAN calling on auto accessory dealers, write us for side line that sells. The Jenkins Co., Thomasville, Ga.

WANTED—By large manufacturing corporation mechanical engineer with thorough knowledge of rotary drilling equipment. All correspondence will be treated in confidence. Address Rotary, Box 245, care The Oil and Gas Journal, Tulsa, Okla.

BUSINESS OPPORTUNITY

BROKERS desiring to handle leases in new producing oil field write me. Address Box 534, Roswell, New Mexico.

FOR SALE—Leases on four 40-acre tracts in heart of trend; 7 miles from good shallow production, $2 per acre. A bargain. Address Box 534, Roswell, New Mexico.

INTERNATIONAL Financial Service. Entire issues approved. Stocks, bonds sold. Box 471, Oklahoma City.

WILL pay cash for good royalty, any size. Write Box 202, The Oil and Gas Journal, Tulsa, Okla.

SALESMAN and organizer will raise $10,000 to $50,000 for business venture or venture that promises a worth-while future. Address P. O. Box 457, Chicago.

WANTED—Party with capital to finance the drilling of an oil well in Arkansas. Good geology. T. L. Cook, Box 307, Camden, Ark.

CONSOLIDATION—Consolidation is almost an economic demand. Production owners, there is a reason why you should consider consolidation of your interests with those of other similar companies. Equitable consolidation, free from promotion schemes, is not difficult when handled by disinterested and qualified parties.

We handle all kinds of consolidations. No advances asked; highly qualified; references given; correspondence will bring full detail before you. The Western United Syndicate, Erie, Penn.

CAPITAL IN ANY AMOUNT may be raised by reaching selected investors direct by mail. Twenty years' experience planning and writing sales campaigns for financing enterprises of almost every nature. Outline your proposition for free suggestions, samples of my work and new, enlarged, illustrated edition of my book, "How to Raise Capital." Gardner Advertising Service, 511-L Ridge, Arcade, Kansas City, Mo.

Inquiries about leases, tools, machinery, acreage, production and royalties are constantly coming to the Classified Section. The good advertisements on the Classified Pages make it easy for us to answer these inquiries.

C. Hume, Judio Dev. 3.
Rigs, 0; wells drilling, 32; total, 32.

LAWRENCE COUNTY
Wells Drilling
Lawrenceburg—Stribbling, Planet Oil 3.

to erect 10 tanks with a capacity of 1,200,000 gallons.

for several barrels daily, was found at about 700 feet.

25 CENTS per line first insertion; 15c per line each additional insertion. Cash in advance.

CLASSIFIED WANTS

COPY must be in our office Friday prior to date of issue. Average 6 words to the line. Cash in advance

BUSINESS OPPORTUNITY

SOUTHEAST MISSOURI COTTON LAND FOR SALE

We want to sell outright or organize a development company for handling our 5,400 acres of cutover land. We are clearing the land now and building houses and improving as fast as we can. Good crops this year. Location on State Highway, 2 miles from Kennett, county seat, Dunkin County, the banner cotton county of the State.

Write us if interested in buying cotton land or taking stock in development company.

HEMPHILL LUMBER CO.,
Kennett, Mo.

WOULD like to contract with some refinery for about 125 tank cars of gasoline yearly. Direct reply care The Oil & Gas Journal, Box 307.

A 5,000-BBL. WELL IN SOUTH DAKOTA

Is this going to happen and you not know it? It may, for there's wells drilling preparations being made in other localities and the whole country is being geologized. Here's an opportunity to post yourself.

After three years' study of geological conditions bearing on the possibilities of oil and gas deposits in South Dakota, the writer has compiled in the form of a bulletin, a most exhaustive geological report on South Dakota's Great Potential Oil and Gas Fields. Included is a geological map, a geological column and information on 40 structures. Also a report by Chas. T. Lupton, E. W. Shaw and T. P. McDonald—all men of high geological authority.

Price $1.00.
HOWARD P. MANNING,
547 Gibralter Bldg.,
Kansas City, Mo.

To circularize the readers of The Oil and Gas Journal, once, it would cost more than $500. For a small sum you can reach these readers and place your proposition before them.

The classified rates are attractive. It costs but 25 cents the line for the first insertion and 15 cents the line for each additional insertion. Six words usually make a line. Cash with the order.

This useful table will help you to figure the cost of Classified Advertising in The Oil and Gas Journal. Keep it for reference:

	1 time	2 times	3 times	1 month
3 lines	$ .75	$1.20	$1.65	$2.10
4 lines	1.00	1.60	2.20	2.80
5 lines	1.25	2.00	2.75	3.50
6 lines	1.50	2.40	3.30	4.20
7 lines	1.75	2.80	3.85	4.90
8 lines	2.00	3.20	4.40	5.60
9 lines	2.25	3.60	4.95	6.30
10 lines	2.50	4.00	5.50	7.00

WOULD YOU invest $50 with hopes of making $500 profit? Write for proof of financial independence. Address Messinger, 1012 Chronicle Bldg., San Francisco, Calif.

Will sell my interest in producing company which also has small refinery which at present is shut down but could be started up within 48 hours; several hundred wells within a radius of 8 miles of refinery. This is one of the few companies that is absolutely free from debt and has a wonderful possibility. The officer who wishes to sell his interest is not a practical oil or refinery man and such a man is needed in the company. This is a great opportunity for man to come in and make the company one of the biggest in this section. Write Box 121, The Oil and Gas Journal, Tulsa, Oklahoma.

COMMON LAW COMPANIES—Organize under Declaration of Trust; many advantages; legal everywhere; managed by trustees; limited liability. No State organization fees, reports or franchise tax. Meet or do business anywhere. Better than a corporation or partnership. Booklet free. Modern Organization Co., 304 South Broadway, Los Angeles, Calif.

BUSINESS OPPORTUNITY

CAPITAL supplied, manufacturing, oil and other legitimate business, through sale of securities on reasonable commission. House established 30 years. Wiers, 115 Broadway, New York.

RARE OPPORTUNITY
PRODUCTION ALREADY ACQUIRED

For sale at a bargain, a one-twelfth interest in the Harmony Oil & Gas Trust. This trust holds a one-half interest in a large lease in the Tidioute Pool. Two wells on this lease with an open flow of approximately 13,000,000 cubic feet of gas daily. Rock pressure 500 pounds. Gas wells in Queen sand, two miles away still big producers after 40 years. If only one-fourth of the open flow were sold at price offered for the gas this one-twelfth interest should net the owner between $9,000 and $10,000 a year. Contract for sale of gas will probably be closed within the near future. Room for many more wells on what appears proven territory. J. C. Sibley, Jr., 15 Hancock bldg., Franklin, Pa. Bell phone 227; Pet. 'phone 421-X.

GOOD OPPORTUNITY for man with rig; 312 acres; more than can be leased; good layout to right man. L. M. Roe, Calico Rock, Ark.

WANTED—Associates in forming a development syndicate. M. L. Wotton, 709 N. L. St., Tacoma, Wash.

I HAVE wildcat acreage, highly recommended by competent geologist, in vicinity of wells being drilled. Wells spudded in and locations blocked for drilling. I will sell for $2 per acre and up. I might furnish a 10,000-acre block for a drilling contract. W. R. German, Canadian, Texas.

WANTED—To contract with small refinery to handle their entire output of gasoline and kerosene for year 1924. Must be good quality products. Box 242, The Oil and Gas Journal, Tulsa, Okla.

LAST OPPORTUNITY to secure Elko Oil Development & Improvement Co. stock at 10c per share. Well 2,375 feet deep cased to this depth nearing production; high oil and gas content, paraffine base 45 gravity. Address communications to the company, Elko, Nevada.

WANTED, IDEAS—An established manufacturer with ample capital and modern machine shop will manufacture and market oil field supplies or specialties of merit on royalty basis. If you have an idea to sell, write Box No. 180, care The Oil and Gas Journal, Tulsa, Okla.

ATTENTION, Oil Men—I have invented a safety valve for oil wells that brings gushers and oil well fires under absolute control. In case of fire can stand 200 feet away and shut her down almost instantly. It makes no difference whether the tools are in the hole or not. What will you give me for my invention? Doesn't hinder drilling. If I can't do what I say it won't cost you anything. J. W. Scott, Frankston, Texas.

LETTERHEADS-PRINTING

QUALITY PRINTING—1,000 letterheads, envelopes, statements or cards, $3; 200 notesheets and 100 envelopes with name and address, $1. Samples free. Howlett's, Paris, Ill.

POSITION WANTED

GRADUATE CHEMIST B. S., M. S., desires position with oil company. Specialized in hydrocarbon chemistry; qualified to do research work; good references. Now employed. Box 241, The Oil and Gas Journal, Tulsa, Okla.

MANAGER and superintendent open for a connection with a good organization now in or anticipating entering the oil business. Am thoroughly competent to take full charge of both field and office, including drilling; either cable or rotary. Exceptional references furnished. Address Box 212, The Oil and Gas Journal, Tulsa, Okla.

POSITION WANTED

ELECTRIC WELDING engineer desires to conect with reliable refining or producing company. Eleven years experience; will give best of references. Write J. E. McLausson, 3120 E. Fifth St., Tulsa, Okla.

The Journal has a wide circulation, going to all the oil fields, refineries, pipe line stations, gasoline plants, supply houses and business offices. It thoroughly covers the industry.

TECHNICAL REFINER—Thoroughly experienced in all modern methods of refining; the construction, design and operation of refineries to operate on any American or Mexican crude with high efficiency and low operating cost. Familiar with the manufacture of all petroleum products. Highest class references. Ability and experience unquestionable. Would like to connect with large or small refining company. Box 240, The Oil and Gas Journal, Tulsa, Okla.

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REPORTED ARGENTINE WELL

The discovery of what are apparently rich deposits of petroleum in the province of Jujuy, Argentina, has elated industrial interests. Borings made under the direction of the administration of State railways resulted in striking oil at a depth of 530 meters. The well did not prove to be a gusher as at first reported, but a column of oil ascended the tube for a distance of 150 meters, from which two tons were pumped in three hours. Work was suspended to await the arrival of storage tanks. The engineers are confident that borings 30 meters deeper will tap an extensive petroleum strata. The oil is said to be of high quality.

MEXICO ASKS OIL TAX AHEAD

NEW YORK, Oct. 15.—The Mexican Government needs money and has requested the oil companies to pay the oil taxes in advance, as it is said, the administration did not have money to meet the semi-monthly payroll. The Government was given checks for the oil taxes dated ahead and discounted them at the banks.

BOLIVIA OIL GRANTS LAPSE

A dispatch to La Nacion of Buenos Aires, from La Paz says the Bolivian Government has issued a decree declaring that all oil concessions in Bolivia have lapsed, except those of the Standard Oil Co. and the Jacobo Bakhus. It is asserted the companies failed to comply with the terms of their concessions. The measure affects more than 80 concerns and 2,000,000 hectares of oil lands.

PIPE LINE TAX CASE

WASHINGTON, Oct. 15.—The appeal of stockholders of the Valley Pipe Line Co. of California for a review of the action of the Internal Revenue Collector in assessing it a pipe line transportation tax of $100,474, while it was connected with the Shell Co., was denied by the United States Supreme Court. The company was dissolved in 1918 and claimed it never carried oil for any other than the Shell Co.

AVARD, OKLA., TEST

OKLAHOMA CITY, Okla., Oct. 15.—Thomas Pugh of Avard reports that Wichita and Augusta oil operators whom he has interested in leases in Woods County expect to start a test well near Avard soon. It will be drilled to 3,500 feet.

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to answer these inquiries.

Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS PIPE LINE STATEMENT FOR AUGUST

Runs		
*Prairie Pipe Line Co.	2,480,000	80,000
Gulf Pipe Line Co.	1,490,850	48,092
Texas Pipe Line Co. of Okla.	581,780	18,767
Magnolia Pet. Co.	862,672	27,828
Empire Pipe Line Co.	781,817	25,220
Cosden Pipe Line Co.	513,826	16,575
Sinclair Pipe Line Co.	1,024,720	33,056
*Other lines	7,750,000	250,000
Total August	15,485,665	499,538
Total July	16,955 596	546,954
Difference	1,469,931	47,416
Shipments		
†Prairie Pipe Line Co.	3,536,928	114,094
Gulf Pipe Line Co.	1,201,730	38,765
Texas Pipe Line Co. of Okla.	376,611	12,149
Magnolia Petroleum Co.	727,332	23,462
Empire Pipe Line Co.	806,467	25,982
Cosden Pipe Line Co.	278,376	8,980
†Sinclair Pipe Line Co.	1,074,154	34,650
*Other lines	7,444,000	240,000
Total August	15,444,598	498,082
Total July	17,057 623	549,746
Difference	1,613,025	51,664
Stocks		
*Prairie Oil & Gas Co.		23,000,000
*Prairie Pipe Line Co.		1,350,000
Gypsy Oil Co. and Gulf P. L. Co.		8,861,285
The Texas Co.		7 679,842
Magnolia Petroleum Co.		7,512,366
Empire Pipe Line Co.		2,869,178
Cosden Pipe Line Co.		2,863,542
*Sinclair Crude Oil Pur. Co.		30,725,000
Carter Oil Co.		15,796,475
Other lines		3,600,000
Total August		104,257,688
Total July		102,351,598
Difference		1,906,090

*Estimated. †Includes shipments of Texas crude oil.

Stocks do not include approximately 5,850.000 bbls. held in storage on private tank farms and leases.

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1920	1921	1922	1923
January	56,004	64,460	67,702	75,790
February	68,699	70,054	75,096	71,093
March	67,745	68,555	75,631	76,592
April	64,589	65,036	75,462	75,614
May	63,937	65,466	77,592	77,365
June	68,750	62,438	76,193	77,592
July	66,489	59,486	76,435	71,879
August	63,861	64 888	79,387	76,910
September	68,102	60,110	78,512	
October	65,066	57,688	77,209	
November	62,768	58,470	75,313	
December	60,975	61,000	73,351	

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1920	1921	1922	1923
January	98,835	115,550	119,792	171,067
February	107,146	96.736	111,362	164,219
March	110,777	84,168	127,753	185,487
April	114,090	101,015	127,068	179,751
May	110,219	100,253	127,840	177,102
June	102,598	105,037	137,638	173,598
July	112,340	97,096	137 872	168,330
August	122,296	101,652	153,275	142,766
September	127,131	117,440	158,761	
October	122,891	105,728	165,345	
November	117,730	121,803	165,677	
December	117,201	104,023	172,861	

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines, at the close of each month for the past three years:

	1921	1922	1923
January	7,916,353	16,297,858	14,040,567
February	8,721,878	17,009,293	14,028,437
March	9,818,766	16,877,927	13,873,146
April	10,369,941	16,777,842	13,737,575
May	11,224,694	16,948,962	13,815,622
June	12,328,126	16 810,169	14,541,253
July	13,798,698	16,669,286	14,645,584
August	15,155.633	16,235,229	14,770,539
September	15,525,750	16,228,545	
October	15,761.079	15,757,746	
November	14,971,071	16,171,972	
December	15,854,741	14,323,765	

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

	Receipts	Shipments	Stocks
1922—			
August	3,190.47	1,196 98	27,348.91
September	2,382.56	3.31	20,728.16
October	3,368.58	4,783.61	29,313.13
November	3,052.75	2.230.18	30,135.70
December	3,076.36	1,292.84	31,919.22
1923—			
January	2,798.55	2,461.36	32,256.41
February	2,692.93	932.33	34,017.01
March	2,975.88	12,417.00	24,578.89
April	3,529.13	3,064.09	25,053.92
May	3,538.73	4,856.42	23,736.23
June	2,927.71	4,743.78	21,920.16
July	2,996.64	1,471.57	23,445.23
August	3,199.07	3,769.34	22,874.96

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, Sept. 1	2,360,624.79
Runs from wells	564,688.33
Other receipts	110,482.30
Regular deliveries	230,959.21
Other deliveries	170,067.26

The amount of Illinois oil run by the Tide Water Pipe Line Co. in August was 30,059.61 barrels, and deliveries were 136,193.61 barrels. Adding these figures to those of the Illinois Pipe Line Co., makes the runs and deliveries from the Illinois Field as follows:

1923—	Runs	Deliveries
August	648,827.26	370.461.56
September	595,603.89	407,333.79
October	618,459.82	454,005.38
November	566,508.03	434,681.97
December	552,069.33	391,868.37
1923—		
January	599,239.86	470,958.84
February	496,421.79	382,566.83
March	625,006.81	472,920.76
April	521,910.87	423,548.43
May	624,107.98	523.515.00
June	582,511.82	509,137.77
July	594,653.42	489,269.17
August	594,747.94	367,152.82

The Tide Water Pipe Co., Ltd., also delivered in August 148,793.27 barrels of Oklahoma oil. The total deliveries of all grades by the Tide Water were 482,653.58 barrels.

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for July and August:

	July, '23	Aug., '23
Nat. Transit	205,271.26	206,573.94
S. W. Pa P. L.	89,547.38	85,306.54
Eureka P. L.	391,285.43	410,033.87
Buckeye P. L. (Macksburg)	274,862.82	275,646.49
Buckeye P. L. (Cleveland)	20,234.29	19,886.44
Buckeye P. L. (Lima, etc)	147,393.66	147,758.37
Indiana P. L.	15,806.29	16,666.55
Cumberland P. L.	289,117.45	436.995.55
N. Y. Transit	16,426.42	16,733.74
Tide Water P. L.	169,959.63	166,005.44
Pure Oil P. L.	193,290.55	191,968.03
Emery P. L.	33,359.18	34,090.37
Paragon Ref.		
Indian Ref.	330,365.95	327,828.64
Swiss P. L.		1,118.94
Pittsburgh P. L.	10,251.17	9,462.70
Riggs Ref.	6,240.68	6,694.44
Paragon Dev.	34,848.70	31,436.65
Total	2,228.260.86	2,384,206.70
Daily average	71,879.38	76,909.89

Note—Indian Refining Co. also reported other receipts of 96,417.41 bbls. Paragon Refining Co. had other receipts of 156,556.10 bbls. Paragon Development Co. had other receipts of 5,401.52 bbls. Pittsburgh Pipe Line had other receipts of 4,667.06.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for July and August:

	July, '23	Aug., '23
National Transit.	422,987.76	408,858.25
S. W. Pa. P. L.	277,415.94	294,045.52
Eureka P. L.	130,329.66	118,242.13
Buckeye P. L. (Macksburg)	83,321.65	80,467.88
Buckeye P. L. (Cleveland)	1,326.89	1,818
Buckeye P. L. (Lima, etc)	859,327.54	884,324
Indiana P. L.	993,258.99	993,697
Cumberland P. L.	164,609.79	170,603
Southern P. L.	74,561.48	
Crescent P. L.	130,808.72	92,333
N. Y. Transit	872,734.59	476,361
Northern P. L.	114,617.75	51,621
Tide Water P. L.	162,099.13	197,667
Pure Oil P. L.	185,224.23	181,150
Emery P. L.	33,379.92	35,794
Paragon Ref.	157,863.75	163,638
Indian Ref.	507,240.47	425,096
Swiss P. L.		
Pittsburgh P. L.	14,150.16	10,313
Riggs Ref.		
Paragon Dev.	39,974.19	38,966
Total	5,218,232.60	4,426,744
Daily average	168,330.09	142,765

Gross Stocks

The gross stocks held by various pipe lines in the oil producing section of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of July and August were as follows:

	July, '23	Aug., '23
National Transit	1,186,834.36	1,226,516
S. W. Pa. P. L.	842,268.68	905,483
Eureka P. L.	1,911,916.66	1,881,883
Buckeye P. L. (Macksburg)	563,439.40	510,271
Buckeye P. L. (Cleveland)	15,147.16	14,727
Buckeye P. L. (Lima, etc.)	4,142,367.29	4,054,312
Indiana P. L.	669,665.12	612,562
Cumberland P. L.	704,949.90	739,182
Southern P. L.	836,050.71	980,531
Crescent P. L.	80,556.49	73,201
N. Y. Transit	1,904,719.75	2,066,366
Tide Water P. L.		
Northern P. L.	972,254.68	930,881
Pure Oil P. L.	281,599.52	288,590
Emery P. L.	6,816.20	5,560
Paragon Ref.	188,154.78	167,422
Indian Ref.	319,472.69	302,234
Swiss P. L. Co.		3,961
Pittsburgh P. L.	7,348.66	5,064
Riggs Ref.	259.91	1,141
Paragon Dev.	11,751.59	10,394
Total	14,645.583.54	14,770,538
Increase	104.330.05	124,955

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of July and August, showing the gross stocks of the above fields:

	July, '23	Aug., '23
Pennsylvania	3,577,894.12	3,639,614
Lima	796,589.34	844,117
Kentucky	1,931,679.77	1,978,773
Mid-Continent	8,092,385.07	8,058,064
Illinois-	247,035.24	249,960
Total	14,645,583.54	14,770,538

AVERAGE WEEKLY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF PORTS

	Atlantic Ports						Gulf Coast Ports					
Av. Bbls. per Week	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Pt. Arthur Sabine Pass	Tampa	Total	Total All Ports
May	114,666	72,000	312,500	191,000	321,333	1,011,499	.....	100,000	88,000	.....	188,000	1,199
June	68,699	70,054	75,096	71,093	161,600	1,164,500	.....	132,800	.....	.....	132,800	1,297
July	110,750	18,750	517,000	185,250	121,750	953,500	.....	139,750	.....	.....	139,750	1,093
August	116,067	51,709	688,485	222,873	151,970	1,231,104	.....	24,612	219,030	.....	243,642	1,474

AVERAGE WEEKLY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

	Atlantic Ports						Gulf Coast Ports					
Av. Bbls. per Week	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Pt. Arthur Sabine Pass	Tampa	Total	Total All Ports
March	132,500	102,000	404,027	169,600	281,315	1,089,442	271,400	323,368	290,600	60,000	1,044,358	2,133
April	123,333	167,250	268,500	151,250	118,200	828,534	528,750	255,000	282,750	56,000	1,122,500	1,951
May	114,665	128,750	256,500	109,250	153,750	562,915	335,250	227,500	296,500	65,500	924,750	1,487
June	62,800	84,200	358,200	153,400	161,800	757,600	301,000	228,400	213,400	45,800	787,600	1,545
July	71,750	116,250	451,500	112,000	218,750	970,250	367,750	280,000	208,250	23,000	879,000	1,849
August	116,065	89,113	374.613	102,970	197,127	879,888	338,485	266,224	234,388	45,633	1,296,730	2,176

PRODUCTION BY MONTHS AND DAILY AVERAGE PRODUCTION IN THE U. S. FOR 12 MONTHS

		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Wyoming Montana	Other Fields	Totals
1922—										
September:	Month	12,205,146	13,599,530	8,830,930	2,360,228	688,740	2,796,180	2,447,310	3,438,240	45,366,154
	Daily average	406,838	419,984	294,364	84,396	22,958	93,206	81,677	114,608	1,512,398
October:	Month	13,419,432	13,322,151	9,186,994	2,638,875	780,797	2,782,994	2,856,805	3,550,132	48,358,230
	Daily average	432,885	426,521	293,774	85,125	25,187	89,774	92,155	114,522	1,560,943
November:	Month	14,035,527	12,613,560	8,676,000	2,646,091	1,023,450	2,529,150	2,905,800	3,205,290	47,637,873
	Daily average	467,818	420,453	289,200	88,203	34,115	84,305	96,860	106,843	1,587,939
December:	Month	15,436,810	13,135,416	8,707,931	2,649,900	1,596,500	2,463,291	3,108,344	3,149,445	50,295,139
	Daily average	497,639	425,336	280,901	85,330	51,500	79,461	100,286	101,595	1,622,139
1923—										
January:	Month	16,457,445	13,228,574	8,881,004	2,626,611	2,217,002	2,428,013	3,124,707	3,423,516	52,786,873
	Daily average	530,885	426,817	286,484	91,181	74,742	78,338	100,797	110,436	1,702,993
February:	Month	16,436,750	13,045,020	7,663,993	2,748,660	2,258,984	1,934,008	2,922,193	2,907,340	48,056,948
	Daily average	586,670	444,465	273,714	91,622	80,678	67,286	104,364	104,405	1,716,338
March:	Month	19,608,192	13,955,828	8,462,782	2,847,040	2,970,575	2,312,800	3,274,778	3,464,529	56,896,525
	Daily average	632,525	450,188	272,993	91,840	95,825	74,600	105,638	111,759	1,835,581
April:	Month	20,695,959	14,399,610	8,403,240	2,768,052	2,766,000	2,160,200	3,584,048	3,281,340	58,058,449
	Daily average	689,865	479,987	280,108	89,292	92,200	72,010	115,947	109,378	1,934,298
May:	Month	21,535,365	15,668,783	8,932,000	2,805,750	3,389,000	2,175,000	3,566,600	3,546,400	61,608,897
	Daily average	694,689	505,122	288,129	90,538	109,323	70,161	115,051	114,400	1,987,383
June:	Month	22,667,106	15,572,730	8,817,000	2,797,830	3,078,990	1,981,800	3,385,600	3,401,400	61,702,456
	Daily average	755,570	519.091	293,900	93,261	102,633	66,066	122,853	113,380	2,056,748
July:	Month	25,262,082	15,260,184	10,662,000	2,448,566	2,859,000	2,012,000	4,143,400	2,788,600	65,435,332
	Daily average	814,906	492.264	343,935	78,986	92,226	64,903	133,657	89,955	2,110,353
August:	Month	26,440,005	14,049,076	11,454,000	2,316,320	3,113,000	2,078,000	4,180,000	3,473 300	67,103,701
	Daily average	852,903	453 196	369,484	74,720	100,419	67,032	134,861	112,043	2,164,636
	Twelve months	224,179,838	165,890,451	108,597 864	31,853,923	26,842,038	26,803,366	39,503,006	39,629,582	663,300,066
	Total daily average	611,452	454,494	297,528	87,271	73,539	73,434	108,227	108,547	1,817,274

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GAINING *from* 11 *to* 19 % *in Gasoline Production*

In a certain refinery the length of run in the tube stills on a given oil is sixty hours, of which time gasoline is being produced for thirty-six hours.

By substituting Calorized Tubes for ordinary steel tubes, the cycle can be increased to from seventy-two to eighty-four hours, and the production period to from forty-eight to sixty hours, which is a gain of from 11 to 19 per cent in the gasoline production period.

The length of the run is almost always limited by the amount of coke which is deposited in the tubes. Coke is the curse in the cracking of an oil, and steel tubes have to contend not only with their natural affinity for carbon at high temperatures but also with sulphur, brine, or other corrosive ingredients.

In one type of still using vertical tubes in a Texas refinery, the coke deposit at the end of each run averaged about ¼ inch in plain tubes, and under similar conditions Calorized tubes showed less than 1/32 inch coke deposit—which is another way of saying that Calorized Tubes are eight times more efficient than ordinary tubes. Furthermore, the coke in the Calorized Tubes is in the powder form at the bottom of the tubes—not adhering to the metallic surface, not forming a chemical combination with the steel, and more easily removed.

Calorized Tubes are steel or iron tubes that have been subjected to the Calorizing process. In this process, patented by the General Electric Company, aluminum is driven into the metal so as to form aluminum alloy surfaces. These surfaces have the combined qualities of withstanding high heat, reducing the effects of carbon, and resisting corrosive action of sulphur, salt, etc.

The table below gives five specific runs. All the figures refer to ounces of coke deposited per tube for the run:

	Run A		Run B		Run C		Run D		Run E	
	Calorized Tube	Iron Tube	Calorized Tube	Iron Tube	Calorized Tube	Iron Tube	Calorized Tube	Iron Tube	Calorized Tube	Iron Tube
	3½	9	3½	16	15½	22½	31	37	16	39
	2½	6¾	1½	11	10	20	24	34½	25	36
	½	11	1	11¾	8¾	16½	24	34	28	34
	1½	7½	1½	9¾	7½	14	23	34	22	34½
	2	10½	1	11	10	13	19	31	22	36
Total -----	10	44¾	8½	59½	51¾	86	121	170½	113	179½

THESE FIGURES PROVE CALORIZED TUBES TO BE FROM FOUR TO SEVEN TIMES AS EFFICIENT AS ORDINARY IRON TUBES.

Try out a representative installation of Calorized Tubes, not 2 or 3 tubes, but a still full, or preferably a full battery of Calorized tubes.

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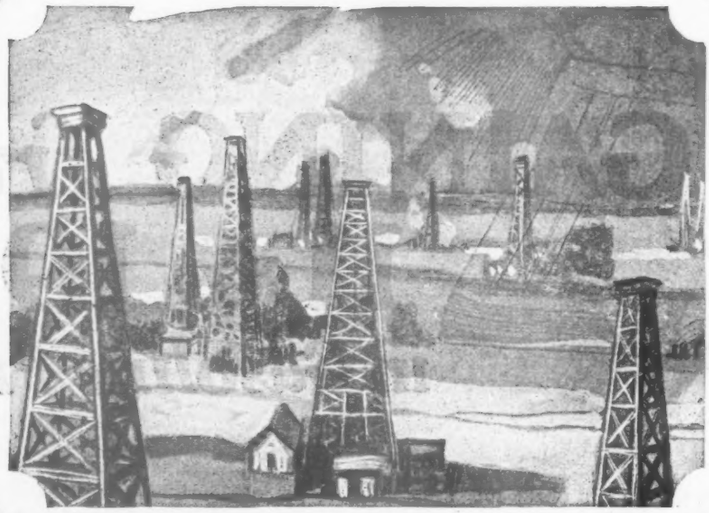


Who Gets The Oil While Your Pump Is Idle?

One thing you may be sure of—YOU don't.

And yet, ordinary valve cups keep your pump idle perhaps six or eight hours a month, while you are pulling out and recupping.

Another well may get that oil, or it may stay in the ground while your overhead goes on and your operation drags out so much longer.

But if the oil does stay in the ground your money doesn't stay in your pocket. Your men are drawing wages every minute—not to pump and make profits, but just to recup when recupping shouldn't be necessary.

You can get genuine Darcova Valve Cups from your dealer. Don't be satisfied with substitutes. If you were paid to take other valve cups you still couldn't afford to use them in place of Darcova.

DARCOVA

Darcova Valve Cups Give Maximum Service

The way Darcova Valve Cups perform is an old story to operators in the oil fields. They learned it long ago.

Pumping trouble is a leak in the pocketbook, and the way to avoid it is to put in these reliable Darcova Cups every time. Then you will get all of your oil before the pocket gives out.

Recupping means a loss of valuable time and oil. You can keep down this costly repair by using Darcova Valve Cups. They give longer wear.

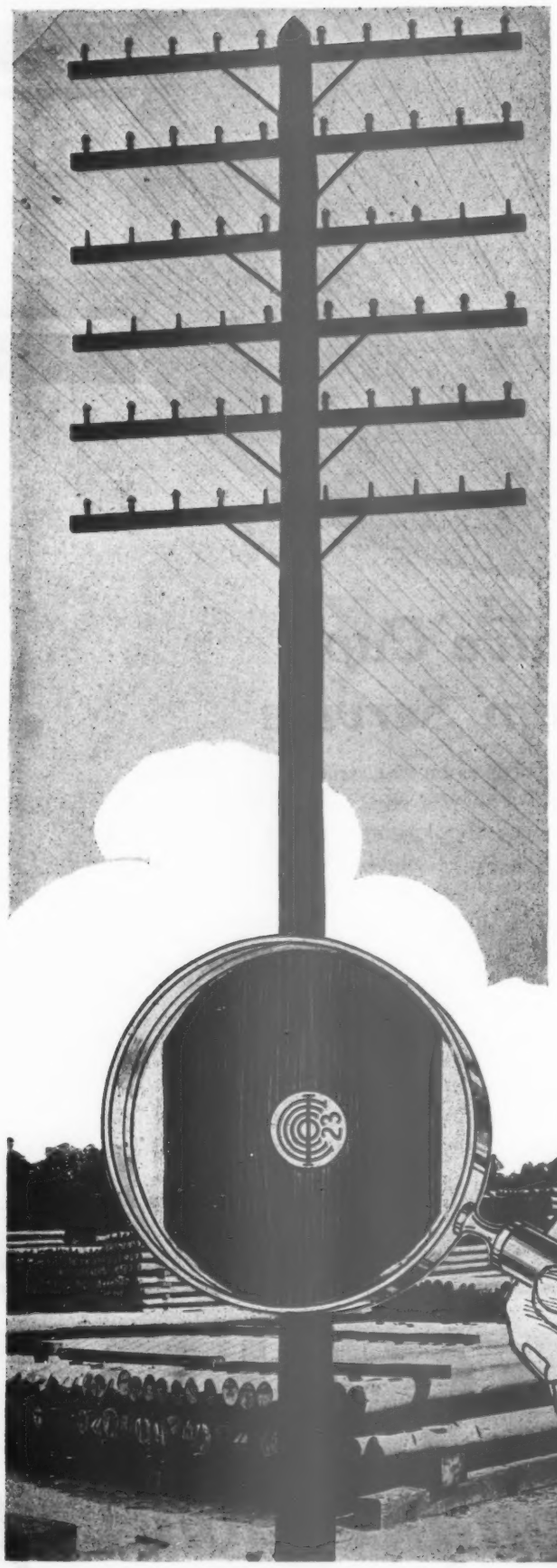
Genuine Darcova Valve Cups have been made for 15 years, and are by all odds the first and best composition cups on the markets. Only selected and tested materials go into them.

Imitations of Darcova are not Darcova. To be sure that you get the genuine Darcova Valve Cups always look for the orange label. You will save yourself money and pump trouble.

Get Darcova Valve Cups from your dealer

VALVE CUP

The Original Composition Cup



Why There's a Dating Nail On Every International Pole

EVERY International Pole, before it leaves our plants, bears the stamp of approval of this company in the form of a copper alloy dating nail which carries our monogram and the year the pole leaves our plant.

This dating nail demonstrates our desire to have the name International identified with International Poles throughout their entire life—and our willingness to stake our reputation upon the service rendered by these poles.

Before a company can afford to adopt such a life-long identification mark it must be certain that the quality is there and that this quality will be reflected in long life and exceptional service, and prove a tribute to its conscientious and efficient methods of production.

We are willing to assume this responsibility for our product because we know that International Creosoted Pine Poles are manufactured from selected, sound timber, and that they are then carefully handled and supervised through every phase of manufacture and are treated full length with high grade creosote oil to give long life and make them resistant to fire and decay.

Prompt shipment of these high grade poles can now be made from stock. Write for full particulars.

International Creosoting & Construction Co.

General Office: Galveston, Texas

Plants: Texarkana, Texas Beaumont, Texas
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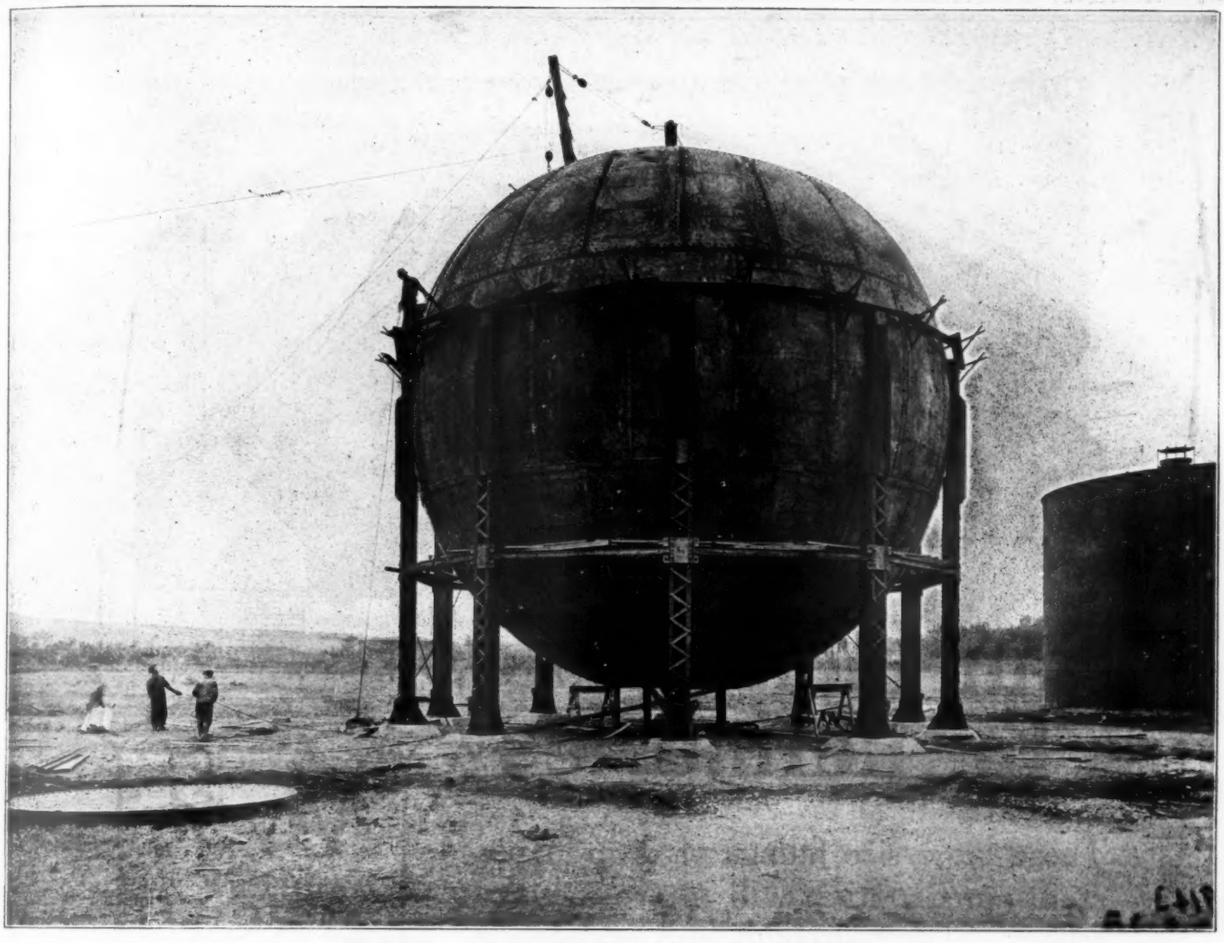

THE HORTONSPHERE
Trade-Mark

Built for A Specific Industry---and Successful

The storage of gasoline manufactured from natural gas, because of its volatility, was very costly. Millions of gallons evaporated. The only solution was to store this gasoline under pressure. This needed special tanks, something better than any previously developed.

Horton tank builders lent their efforts to the situation—to furnish the industry with a successful large pressure storage tank for casinghead gas.

Builds with Natural Laws---Not Against Them

The design of the flat-bottom tank did not suit pressure storage. A container under pressure tends to take a globular form. This led to THE HORTONSPHERE, which is spherical in shape.

Our design relieves the casinghead gas industry of a great handicap by making pressure storage in large quantities practical.

Besides storing casinghead gasoline, HORTONSPHERES are suitable for blending, storage of other volatile liquids and other uses around refineries.

Write our nearest office for quotations
Gladly given without obligation

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HORTON TANKS

228

Include THE HORTONSPHERE. 7 *RING* 80. *Also other oil storage and refinery equipment for the oil industry*

Four Inch Fittings For Refineries

Vogt
DROP FORGED STEEL FITTINGS

These large size fittings of drop forged steel construction will interest every refiner. Their strength and endurance are a prevention against fire. The Vogt Drop Forged Steel Ells and Tees are made in sizes up to and including four inches; also Drop Forged Steel Companion Flanges in sizes up to and including eight inches. These fittings prove their worth where high temperatures and pressures are used. Let us tell you all about them.

Catalog and Discount Sheet gladly sent upon request

HENRY VOGT MACHINE CO.
INCORPORATED
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BRANCH OFFICES: NEW YORK, CHICAGO, PHILADELPHIA, DALLAS

MANUFACTURERS OF DROP FORGED STEEL VALVES AND FITTINGS :: WATER TUBE AND HORIZONTAL RETURN TUBULAR BOILERS :: OIL REFINERY EQUIPMENT :: ICE AND REFRIGERATING MACHINERY

Spencer Compressor Station—United Fuel Gas Company, Spencer, W. Va.

Contains three 485 Brake Horse Power Single Tandem, and three 970 Brake Horse Power Twin Tandem Cooper Gas Engines, direct driving Compressor Cylinders, for pumping natural gas

How Soon Can We Deliver?

Years ago when we first began building gas engines the question of delivery was one we liked to avoid for it was then necessary to build the engines after the orders were received.

Today the Cooper 485 H. P. size has become the established standard for the larger compresser stations throughout the country. So far this year we have shipped twelve units—one to the Owens Bottle Company Natural Gas Department and four to the United Fuel Gas Company in West Virginia, one to the Empire Companies in Kansas and six to the Midwest Refining Company in Wyoming. Three more are in process of construction in our shops. We have built as many as twenty-four of this size in one year.

Such standardization on the part of the trade has made it safe for us to always have from three to five of these engines under construction on a quantity basis for stock. This permits us to offer a quicker delivery on large gas engines which in many cases has meant a saving of thousands of dollars on an installation.

The Cooper 80 and 160 H. P. Gas Engines

have been selected for practically all of the larger small engine installations made during the year in Pennsylvania, West Virginia, Kentucky, Texas, Oklahoma, Kansas, Ohio, Wyoming and California. They are a four-cycle direct connected unit and are being favored more particularly on account of their fuel economy, reliability and greater ease of operation.

The C&G COOPER CO.

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1605 KIRBY BUILDING, DALLAS, TEXAS.

Since 1833 Engineers and Builders

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It Pays

to Insist Upon

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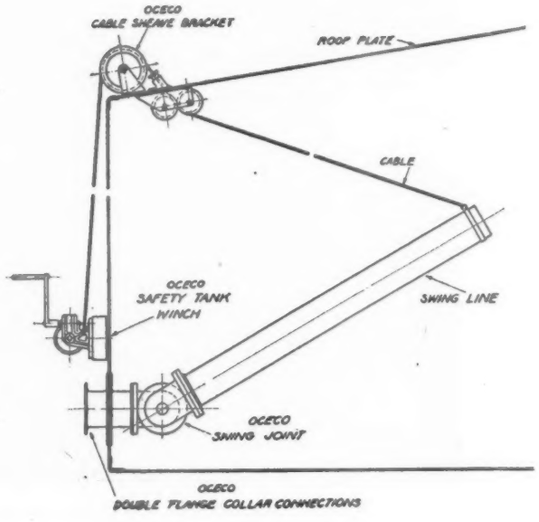
Equipment



For OCECO

Costs less to install
to maintain
to operate

Cable Sheave Bracket—A completely assembled unit ready for quick installation on any tank. Patented — thoroughly protected against infringement. Saves pumper's time and lowers operating cost and maintenance.

Safety Tank Winch—The only winch of the kind in America. The only winch offered the Underwriters' Laboratories, Inc., for testing to destruction. Self locking—prevents dropping of swing line. Tamper-proof. A **really** satisfactory winch!

Regardless of where you buy your tanks, you can have them OCECO Equipt.

Swing Joint—Heavier than any other type of swing joint on the market. When used in connection with double flange collar tank shell connection, it eliminates any possibility of joints turning and fouling of cable lines. Just what you've always wanted.

Ask for new Swing Line Equipment catalog just off the press.

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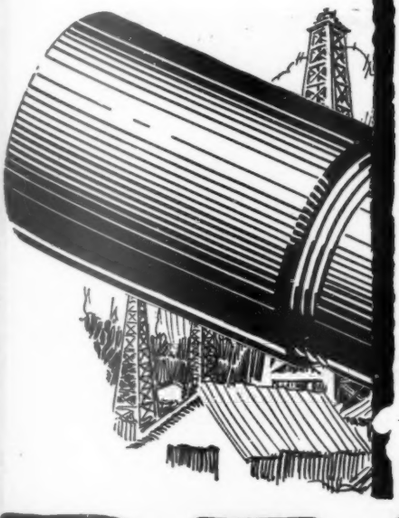
What Does It Cost~

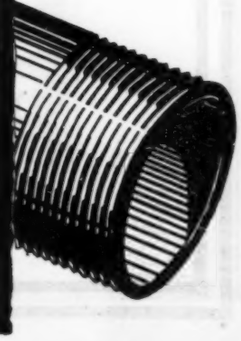
To Drop A String of Tubing ?

Figure these items :

1-Cost of assembling fishing tools.
2-Cost of labor pulling tubing and fishing for dropped string in hole.
3-Cost of damage to pipe, necessitating replacement and threading.
4-Loss of production.
5-Miscellaneous expenses.

When a string of tubing parts what does it cost you ?





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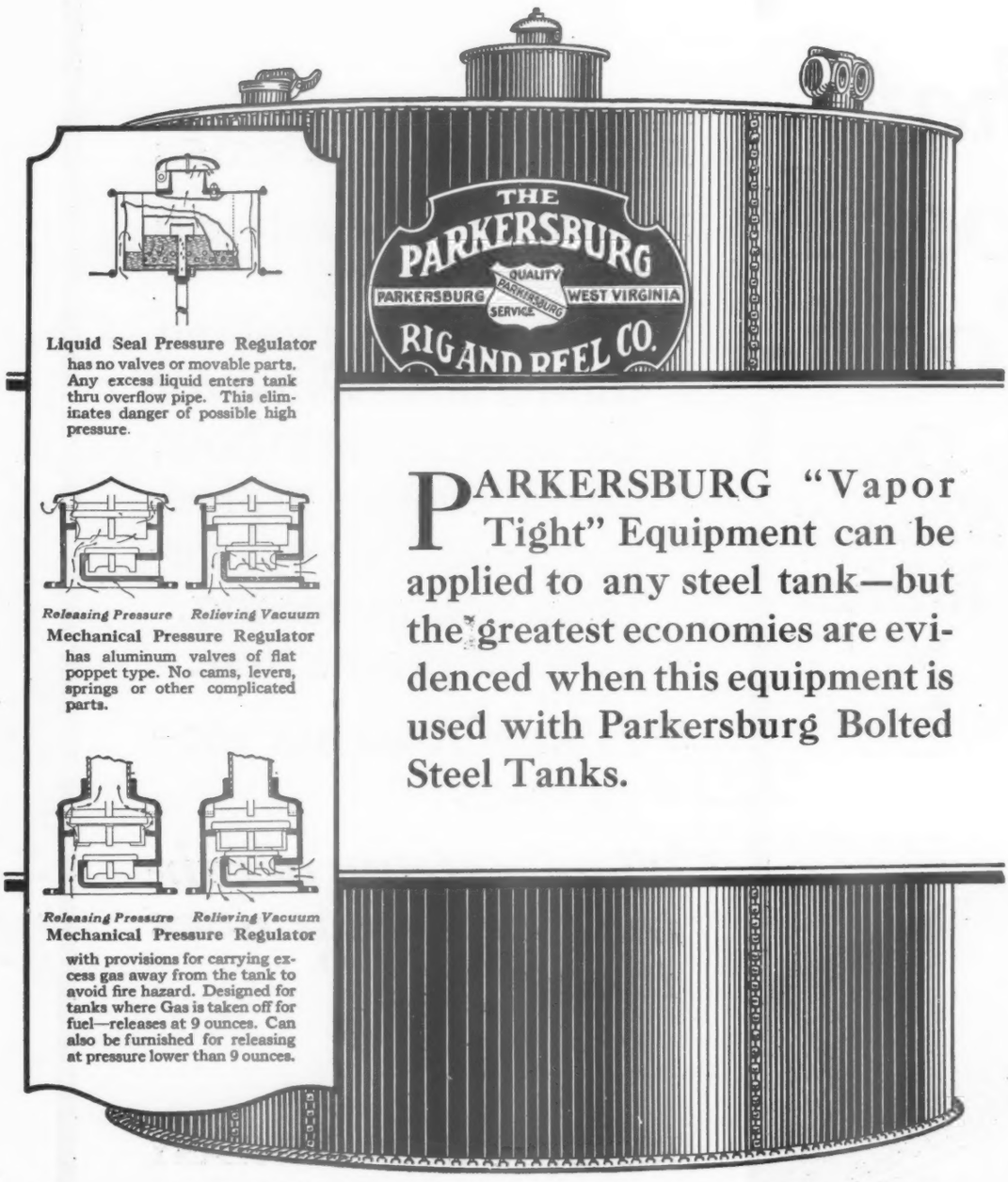
READING
GUARANTEED GENUINE
WROUGHT IRON PIPE



Liquid Seal Pressure Regulator has no valves or movable parts. Any excess liquid enters tank thru overflow pipe. This eliminates danger of possible high pressure.

Releasing Pressure *Relieving Vacuum*

Mechanical Pressure Regulator has aluminum valves of flat poppet type. No cams, levers, springs or other complicated parts.

Releasing Pressure *Relieving Vacuum*

Mechanical Pressure Regulator with provisions for carrying excess gas away from the tank to avoid fire hazard. Designed for tanks where Gas is taken off for fuel—releases at 9 ounces. Can also be furnished for releasing at pressure lower than 9 ounces.

PARKERSBURG "Vapor Tight" Equipment can be applied to any steel tank—but the greatest economies are evidenced when this equipment is used with Parkersburg Bolted Steel Tanks.

The PARKERSBURG RIG & REEL CO.

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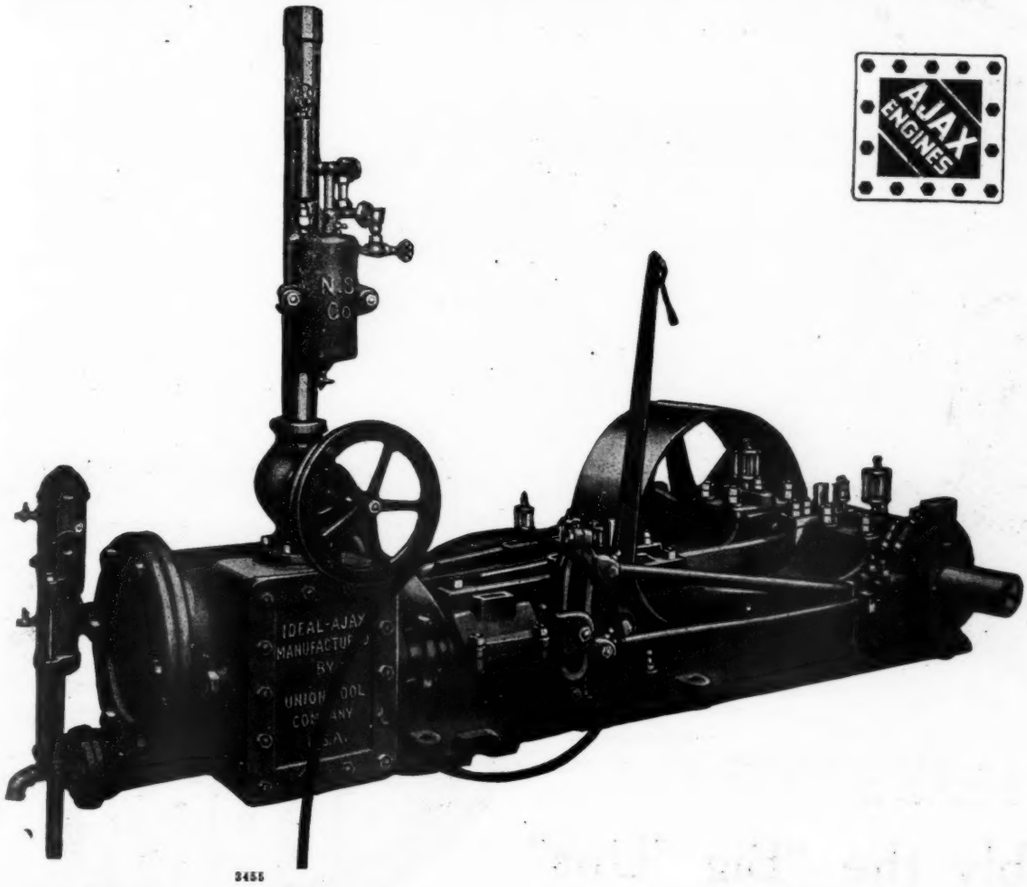

The Valve Stem Rest

is an important part of a steam engine. If it should get out of line, or shake, you would have trouble with your valves and get less power.

On the Ajax Engine the valve stem rest is now rigidly bolted to the frame with four bolts instead of two. This has been so accomplished by our improved design that the parts are still interchangeable with engines of the older models.

Distributed by
National Supply Companies
in every field

Manufactured by
Ajax Iron Works
Corry, Pa.

AJAX DRILLING ENGINES

A few of the many Moore Derricks erected by the Gulf Production Co. at Caddo Lake, La.

Inevitably the "Big 'Uns" Adopt Moore Derrick

Little time is lost in adopting the Moore tubular derrick by the big companies which have once thoroughly tried, tested and compared derricks of wood and steel. Logically they proceed to buy the Moore tubular derrick on the basis of lowest ultimate cost.

Its great strength and light weight; its long life; its simplicity and ease of erection; its safety against fire and wind hazard—these are a few of the considerations which every day make big operators adopt the Moore derrick.

At Caddo Lake, La., a few years back there was hardly a Moore derrick to be seen. A year ago there were a few, and today there are a great many. Eventually you may scan the lake in vain for a wood derrick, remembering that not long ago there was no other kind.

The choice of a steel derrick is easy—the Moore derrick is invariably the choice of the large majority of operators using steel derricks. The Moore derrick, years ago, passed the experimental stage, and the evidence of over 20,000 Moore derricks in successful use should mean more to you than all the reasons we could give you for its superiority.

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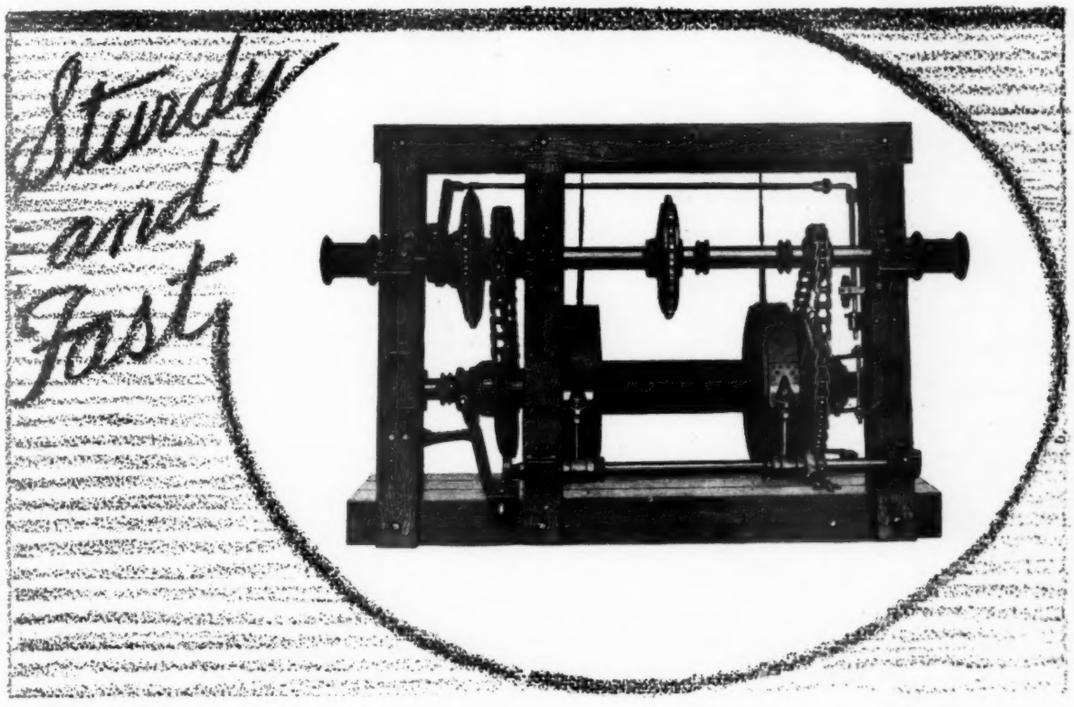

"Gumbo Buster" Draw Works

Latest Model

This improved "Gumbo Buster" Draw Works has built into it the qualities that guarantee exceptional speed and a long life of service.

Special attention is called to the following features:

—Improved brake shaft and brake band connections, which are of high grade electric steel—simple and strong.

—Upper and lower tie rods are placed inside the derrick, permitting adjustments to be made from the derrick floor.

—All clutch blocks are of high grade electric steel.

—All clutch sprockets are of cast steel, unless otherwise ordered, accurately bored—best grade of bronze bushings being used.

Republic Supply Co. Distributors

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Write for specifications and prices.

AMERICAN WELL & PROSPECTING CO.

CORSICANA, TEXAS **California Branch: LOS ANGELES**

INDEX TO JOURNAL'S ADVERTISERS

A

Acme Petroleum Co. 86
Ajax Iron Works 11
Aldrich Pump Co. .....
Alexander, R E. .....
American Car & Foundry Co. .....
American Pipe Bending Machine Co..
American Rolling Mill Co. 59
American Schaeffer-Budenberg Corp.125
American Sheet & Tin Plate Co..... 95
American Well & Prospecting Co... 13
Anderson, Carl B. 124
Anderson & Anderson 125
Arbon, Paul, & Co. .....
Athey Truss Wheel Co. 51
Austin Co. .....
Axelson Machine Co. .....

B

Baker Casing Shoe Co. 120
Ball Swivel Wrench Co. .....
Barnes Mfg. Co. .....
Barnickel, Wm. S., & Co. 122
Barnsdall Refining Co. 115
Bartlesville Supply Co. .....
Bear Tractors, Inc. .....
Beaumont Iron Works .....
Beckner, Lucien 123
Bessemer Gas Engine Co. 57
Bignall & Keeler Machine Works... 73
Biggs Boiler Works Co. .....
Black, Sivalls & Bryson, Inc. 23
Borden Co. .....
Boykin Machinery & Supply Co.....104
Braden Co., The 29
Bradford Motor Works 122
Brainerd & Toulson .....
Bridgeport Machine Co. .....
Bristol Co. 107
Broderick & Bascom Rope Co. .....
Brokaw, Dixon, Garner & McKee...125
Brown & Thomsen 124
Brown, Vergil Neal 125
Brown Welding & Machine Co.....
Brownell Co. .....
Buckeye Tractor Ditcher Co. .....
Burhorn, Edwin Co. 109
Burrell, Geo. A. 123
Butler Mfg. Co. .....
Byers, A. M., Co. .....

C

Calorizing Co. 1
Capital Abstract & Realty Co. 127
Carnegie Steel Co. 122
Caudill, Samuel J. 124
Central Texas Petroleum Co. 108
Chain Belt Co. 35
Champion Machine & Forging Co....
Chaplin-Fulton Mfg. Co. 108
Chapman Valve Mfg. Co. 85
Chicago Bridge & Iron Works 5
Chicago Pneumatic Tool Co. .....
Chisholm-Moore Mfg. Co. 105
Clapp, Frederick G. 121
Clark Bros. Co. 39
Clark, Robert W. 121
Classified Wants 126-127
Close-to-Nature Co. .....
Columbian Rope Co. .....
Connolly, D. F., Agency, Inc.....102
Cook, Paint & Varnish Co. 93
Cooper, C. & G. Co. 7
Cosden & Co. 116
Crandall & Murta 125
Crane Co. .....Roto 7
Cummins Working Barrel Co. 118
Cyclone Fence Co. .....

D

Darcova Valve Cup.....2-3
Darling Valve Mfg. Co. .....
Dart, E. M., Mfg. Co. .....
Davis, G. M., Regulator Co. 116
Dawson Towel Supply Co. 127
Dayton Pipe Coupling Co. .....
Deep Well Engineering Co. .....
De Laval Separator Co. .....
De La Vergne Machine Co. .....
Delta Electric Co....Inside Front Cover
Deming Co. .....
Derby Oil Co. .....
Detroit Belt Lacer .....
Detroit Graphite Co. .....
Dickey-Ashby-Fountain Co. 127
Dresser, S. R., Mfg. Co. 19
Dunn Mfg. Co. 15

E

Eastern Torpedo Co. 119
Empire Refineries, Inc. .....
Equitable Meter Co. .....
Essex Brass Corp. 125
Exchange National Bank .....

F

Fairbanks-Morse & Co. 75
Federal Engineering Co. 125
Federal Supply Co. .....
Fenwick-Reddaway Mfg. Co. 98
Fisher Governor Co. 97
Flexible Steel Lacing Co. 122
Foamite-Childs Corp. .....
Fohs, F. Julius 123
Fort Worth Laboratories 121
Foster & Reiter 123
Foxboro Co., The, Inc. 76
France Packing Co. 77
Franklin Valveless Engine Co.....107
Freeborn Engineering Co. 120
Frick-Reid Supply Co. 81
Fulton Iron Works .....

G

Gantz Tank Co. 58
Gardner Governor Co. 111
Gaso Pump & Burner Mfg. Co.....
.....Inside Back Cover
Gas-Tite Device Co. .....
General-American Tank Car Corp...
General Electric Co. .....
Gilbert & Barker Mfg. Co. .....
Gomory, W. L. 121
Goodrich, B. F., Rubber Co. .....
Goodyear Tire & Rubber Co. 114
Goulds Mfg. Co. 124
Graver Corp. .....Roto 5
Greene, Frank C. 123
Greene, Tweed & Co. .....
Griscom-Russell Co. 89
Guiberson Corp. .....
Gurley, W. & L. E. 120

H

Harris Bros. Co. .....
Harrisburg Pipe & Pipe Bending Co.
Hazard Mfg. Co. 101
Henry, George W. 127
Herald Bros. 125
Hercules Corp. .....
Heydrick Mapping Co. 120
Hinderliter Tool Co. .....
Holt Mfg. Co. .....
Homestead Valve Mfg. Co. .....
Hood, H. H. 122
Hope Engineering & Supply Co..55-120
Hopkins, Edwin B. 123
Hough, Chas. N., Mfg. Co. 117
Hughes Tool Co. .....Back Cover
Hughes, V. H. 125
Hunt, Robert W., Co. 125
Huntley & Huntley 122

I

Illinois Glass Co. 90
Imperial Brass Mfg. Co. .....
Imperial Oil Marketing Co. 88
Indiahoma Refining Co. 123
Industrial Construction Co. .....
Ingersoll-Rand Co. 61
International Creosoting & Construction Co. 4
International Derrick & Equipment Co. .....Front Cover
International Seal & Lock Co.....119
International Supply Co. 37
Iron King Mfg. Co. .....

J

Jarecki Mfg. Co. .....
Jeffrey Mfg. Co. 119
Jeffery, W. H., Co. .....
Jefferys, G. 117
Johns-Manville, Inc. .....
Johnson, Roswell H. 124
Jones, S. M., Co. .....

K

Kansas City Hay Press Co. 109
Kansas City Structural Steel Co. ... 89
Kaw Boiler Works .....
Kellogg, M. W., Co. 87
Kelly & Jones Co. 53
Kelly-Springfield Tire Co. .....
Kewanee Boiler Co. 99
Kirk & Hoover 124
Kliewer Steam Snuffer Mfg. Co.....

L

Lafe Speer Abstract Co. 127
Larkin & Co. 114
Lasky, Bernard H. 122
Leader Iron Works .....
Leader-Trahern Co. .....
Leidecker Tool Co. 77
Lewis, James O. 121
Link-Belt Co. .....Roto 2-3
Lockett, A. M., Co., Ltd. .....
Logue, A. R. .....
Longyear, E. J., Co. 123
Ludlow Valve Mfg. Co. 119
Lufkin Rule Co. .....
Lunkenheimer Co. .....

M

Magnolia Petroleum Co. .....
Maloney Tank Mfg. Co. 94
Marland Refining Co. .....
Marsh Gauge Pole Co. 123
Matson, George C. 125
Matteson, W. G. 123
Messimer, H. H. 124
Metric Metal Works 71
Miller Improved Gas Engine Co.....
Miller, Max B. & Co., Inc. .....
Moon Mfg. Co. 120
Moore, Lee C. & Co., Inc. 12
Morrison Bros. .....
Munn & Co. 122
Myrick Machine Co. .....

Mc

McCord Radiator Mfg. Co. 80
McDonald, A. Y., Mfg. Co. .....
McGrath, T. S. 112
McGregor Working Barrel Co. .....
McNutt, V. H. 123

N

National Airoil Burner Co. 123
National Lead Co. .....
National Supply Co. 69
National Transit Pump & Mach. Co. 41
National Tube Co. .....
National Turnbuckle Derrick Co.....107
New Bedford Cordage Co.....
Norris Bros. 113
North American Car Co. .....
Northern Oil Information Bureau...117
Nye Tool & Machine Works 121

O

O'Brien Steel Construction Co. 112
Ohio Structural Steel Co. .....
Oil Conservation Engineering Co. ... 8
Oil Country Specialties Co. .....
Oil Well Improvements Co. 43
Oil Well Supply Co. 21
Oklahoma Tool & Supply 37
Oster Mfg. Co. .....

P

Page Fence & Wire Products Assn...
Parker Cup & Specialty Co. .....
Parkersburg Machinery Co. 117
Parkersburg Rig & Reel Co. 10
Pattin Bros. Co. 79
Pawling & Harnischfeger Co. .....
Penn American Refining Co. .....
Pennsylvania Petroleum Co. 125
Pennsylvania Tank Car Co. 113
Petroleum Iron Works 74-87
Petroleum Safety Appliance Co. ....
Pforzheimer, Carl H., & Co. 110
Pickering, W. R., Lumber Co. .....
Pioneer Tank & Boiler Co. 121
Pittsburgh-Des Moines Steel Co. 115
Pittsburgh Meter Co. 124
Powell, Wm., Co. .....
Power Engineering & Ignition Co., Inc. 111
Prewitt & Hauser 117
Producers & Refiners Corp. 121
Pure Oil Co. .....
Pyle National Co. 96

Q

Quimby, Wm., E., Inc. 125

R

Ransomerian Business School 124
Reading Iron Co. 9
Reading Steel Casting Co. 113
Reavis, H. S. 121
Reed Roller Bit Co. 100
Reid, Joseph, Gas Engine Co. 55
Republic Iron & Steel Co. .....
Republic Supply Co. .....
Rich, John L. .....
Ring, Dewitt T. .....
Roots, P. H. & F. M., Co. .....
Rossendale-Reddaway Belting & Hose Co. .....
Ross-Meehan Foundries .....
Ruby, Glen M. .....
Ryerson, Joseph T., & Son .....

S

Sand Springs Water Co. .....
Shaffer Specialty Co. .....
Shaw, E. W. .....
Sistersville Tank & Boiler Works...
Sivyer Steel Casting Co. .....
Smith Separator Co. .....
South Chester Tube Co. .....
Spence, H. M. .....
Spencer Petroleum Co. .....
Stacey Bros. Gas Construction Co...
Stalder, Walter .....
Standard Engineering Co. .....
Standard Machine & Tool Co. .....
Stanley Belting Corp. .....
Star Drilling Machine Co. .....
Stewart Iron Works Co. .....
Stewart, Irvine E. .....
Stitt Ignition Co. .....
Stockman & Fees .....
Sullivan Co. .....
Sullivan Machinery Co. .....
Superior Tube Co. .....

T

Taxman Refining Co. .....
Taylor Instrument Co. .....
Texas Co., The .....
Texas Gulf Sulphur Co. .....
Texas Oil Pump Co. .....
Thomas, J. Elmer .....
Titusville Iron Works .....
Toledo Pipe Threading Machine Co..
Travelers Insurance Co. .....
Trimont Mfg. Co. .....
Trumble Gas Trap Co. .....
Truscon Steel Co. .....
Tucker, Jas. I., Co. .....
Tulsa Boiler & Sheet Iron Works....
Tulsa Ice Co. .....

U

Union Machine Co. .....
Union Petroleum Co. .....
United Iron Works .....
Universal Oil Products Co. .....

V

Vanadium Corp. of America .....
Villars, J. R. .....
Vogt, Henry, Machine Co. .....

W

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Better Days Are Dawning For Oil Men

A dozen or more official representatives of foreign countries, guests of the International Petroleum Exposition and Congress held in Tulsa called at the office of The Oil and Gas Journal to subscribe or renew their subscription for one year. Thumbing the 228 pages of one week's issue, one of these delegates remarked: **"Its simply marvelous."**

One of them from the Argentine Republic was amazed that so much accurate information regarding his own country is printed throughout the year in the columns of The Journal.

The Oil and Gas Journal is a leader and not a trailer in petroleum journalism. It was the pioneer in the field and is today the sole source of accurate statistics and data pertaining to all fields, not only in the United States but abroad.

The oil producer who does not read The Journal was one week without knowledge that daily production fell 60,282 barrels between September 29 and October 6. It decreased 14,654 barrels daily according to Journal information the week previous. These slumps in production have been recorded in The Journal each week for some time and any man who does not read and consider these important facts is unprepared for a new condition in the industry, which is bound to break for the better within a few months. It means everything to the owner of royalty, the producer, the refiner and the man who markets oil products to know that some of these days a new era will dawn which will enable the producer to operate at a real profit and which will add to the prosperity of all who are dependent upon better conditions within the industry.

The Oil and Gas Journal correspondents are stationed in every oil field of the United States. They are not here today and gone tomorrow, but they make a daily study of conditions and write with absolute knowledge after an experience of many years. These men are permanent employes of The Oil and Gas Journal, known to all scouts and all companies and their writings are dependable.

The executives and superintendents of refineries study each week's issue of The Big Yellow Book, cut and file away the several technical articles, realizing that the authors are the great thinkers of the industry and that the refiner who fails to study each week's issue is not keeping abreast of the times.

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Oil men pay for quality in clothing, machinery, homes, food and education. They can buy a cheap imitation, but they prefer the "Oil Man's Bible." There can be no bargains in petroleum literature. An erroneous fact purchased at a low cost may result in a business policy which will result in great loss. False knowledge is expensive at any price.

The Oil and Gas Journal is the original producer of oil news. Its men have followed the oil development from the East and have passed through every crisis in the industry.

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